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Divergent Perspectives on Military Transformation

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Foreword

The transformation of military forces to adapt to a rapidly changing security environment has become a major issue in transatlantic security relations. While the need to transform has become imperative for all Western militaries there a notable differences across the Atlantic in addressing the dimensions of force transformation. In the light of Operation Iraqi Freedom many Europeans grew skeptical of what they regard as a one dimensional U.S. approach to transformation, focusing predominantly on war-fighting capabilities while neglecting requirements for low-intensity operations. Americans on their part questioned European willingness to substantially invest in transformation efforts to make their forces more useful for future combined operations. A constant transatlantic dialogue is therefore a prerequisite to harmonizing the different conceptual approaches to military transformation.

In two conferences, a working group entitled "Diverging Perspectives on Defense Transformation" tried to support this effort. The first conference was held in December 2004 in Berlin at the *Stiftung Wissenschaft und Politik* (German Institute for International and Security Affairs), and the second in April 2005 in Carlisle, PA at the *Strategic Studies Institute* (SSI) of the U.S. Army War College. The working group was part of a larger SWP project entitled "*Diverging Views on World Order? Transatlantic Foreign Policy Discourse in a Globalized World,*" supported by a grant from the German Marshall Fund of The United States (GMF). The project brings together decision-makers and opinion leaders from the U.S. and Europe in small working groups for an open exchange of ideas concerning selected global issues on which the U.S. and Europe tend to see things differently.

During the two conferences, the different dimensions of transformation were discussed. The papers collected in this volume were prepared as part of these discussions. The analysis and observations provided are a valuable contribution to the transatlantic thinking on how to transform the armed forces in an era of change. The project would not have been possible without the generous grant from the GMF for which we would like to express our thankfulness. Our thanks also go to Prof. Douglas Lovelace and SSI for the invaluable intellectual, financial and organizational support in realizing this project. Their cooperation made both conferences a stimulating and successful event.

Berlin, June 2005
Benjamin Schreer, Working Group Leader
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Driving in Reverse: Perspectives on Military Transformation

*Brian McAllister Linn**

Some may think my title, "Driving in Reverse: Perspectives on Military Transformation" is what historians do—and question if a historian—and one whose expertise is neither technology nor management—should even be discussing military transformation. My response would be that unless the defense intellectual community is going to rely completely on the promise of future technology and speculation, historical interpretation has, is, and will remain a central intellectual pillar of the military transformation dialogue. In fact, the term military transformation implies it is important to know what an institution was, and is, in order to predict what it will become.

Over a decade ago the American Andrew Marshall's "Some Thoughts on Military Revolutions" concluded that Revolutions in Military Affairs (RMAs), now usually referred to as Military Transformations—were as much conceptual as technological. In doing so, Marshall and his followers sought to capture intellectual primacy over the military reform movement from those who believed that technology and organization alone provided all the answers. As many of you know, the Department of Defense's Office of Net Assessment—and a generation of historians since then—have argued that the Interwar Era (1919–1939) vindicates Marshall's conclusion. They note that at the outbreak of the Second World War the Germans, French, and British had similar weapons but very dissimilar operational concepts. At least part of this difference is explained by the connection between the German Army's intensive study of the lessons of World War I and its later development of combined arms warfare.

There are numerous other instances of the military transformation community's growing use of history. It is almost formulaic for a book on transformation to be filled with references to a long-ago battles and generals. When I was at the Army War College, no general or admiral's transformation briefing was complete without the obligatory PowerPoint slide illustrating, as far as I could understand, that it was time for Americans to choose between the blitzkrieg or the Maginot Line. Perhaps building on the work of historians such as John Keegan and Victor Davis Hanson, transformation advocates often emphasize the role of "military culture"—a historic construct if there ever was—in explaining how military institutions innovate and adapt. Another illustration of the importance of history to the defense dialogue is the term "New American Way of War." Implicit in this term is the presupposition that it is important to understand what the "Old" American Way of War was, if only to distinguish it from the

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"New." Ironically, the transformation community has taken as its model for the Old American Way of War the attrition-annihilation dichotomy of the late Russell F. Weigley, a model that military historians have increasingly questioned.

This reliance on historic examples to advocate policy may be—as some people have told me—merely window dressing: intellectual ornamentation for a process that is essentially driven by technical specialists, the Congressional military-industrial complex, and the battle for budgets. But if the 20th Century, and the recent events in the Global War on Terrorism should have demonstrated to even the most avowed believer in Realist theory– ideology does matter. Even if those who cite historical examples to justify policy do not believe them, others do believe. And over time these beliefs, however cynically introduced into the dialogue, do have an impact on what technologies are developed, how they are assimilated within military organizations, how those institutions adapt them into operational concepts, and how they are employed in war.

And this introduces a major problem. Too much of the historical literature on transformation is conceptually weak, inadequately researched, simplistic, and is often factually suspect. What is even more disturbing is that this flawed literature is assimilated by an uncritical audience and soon is cited to justify even more specious ideas. The lack of historical awareness, and the poor quality of much of the research, has led to some of the major tenets–one might even refer to them as the central dogmas–of the transformation debate being essentially built on historical fallacies. These fallacies deserve some examination.

The first of these historical errors is the universality of the Interwar Era model to the exclusion of virtually all other historic cases of military transformation. Even worse, the interwar literature has tended to focus only on such innovations as armored and amphibious warfare, strategic bombardment, tactical air power, aircraft carrier aviation, and perhaps two or three others–that proved decisive in the Second World War. Any reasonable person must question models of transformation based solely on the evolution of a few doctrines or weapons systems in one 20-year period in mankind's 4,000 years of conflict. The transformation dialogue needs to move beyond the false dichotomy of the blitzkrieg-Maginot Line, indeed, it needs to move far beyond just the Interwar Era.

The second fallacy is the Prophet without Honor. The Transformation literature is filled with references to military thinkers who predicted the next war, but were scorned and rejected by the conservative military establishment. Many reformers today identify with these earlier writers and believe that if they are not outspoken and iconoclastic they are somehow not real Prophets. But what is even worse, their audiences accept this fallacy as well—so that the more outrageous a writer is, the more people credit him for being an original thinker. A bit more historical research–actually reading the works of these prophets in total, and in context, rather than cherry picking the bits and pieces that conform to the current debate—would reveal that often these visionaries deliver their oracles in

convoluted and obscure prose. Just as often, they entirely overlook one or two crucial variables. And even more their remedies for reform are usually recipes for disaster. Cumulatively, their predictions for the future are about as useful as the prophecies of Nostradamus.

Here are two examples. The military leaders that oversaw their respective armies in the four decades between the Franco-Prussian War of 1870 and the outbreak of World War I have been criticized for their failure to predict, or to comprehend, the changes in warfare that created the carnage of the Western Front. If the transformation advocates ever wanted a case study of the dangers of intellectual conservatism, of disregarding the implications of new technology, and of failing to innovate and adapt—this would seem to be it. Yet in 1884, General Philip Sheridan, the senior officer in the U.S. Army, wrote in his annual report to Congress that if weapons technology continued to improve "battles will become so destructive of human life that neither side in war will be able to stand up before the other. Armies will then resort to the spade, the pick, and the shovel; both sides will cover themselves by entrenchments, and any troops daring to make exposed attacks will be annihilated." Sheridan declared that future Great Power conflicts would be long and costly wars of attrition in which economic and social factors would be more important than military skill.

Now this is an astounding prophecy—and would apparently give the U.S. Army 30 years to prepare itself for World War I. But how did Sheridan propose to transform the U.S. Army to prepare for this new way of warfare? By turning to the same solutions that Army officers had been championing for decades. He proposed building a new coastal fortification system and predicted that in the next great war a crucial, if not the crucial combat arm would be the horse cavalry.

My second example is General William "Billy" Mitchell. Mitchell is credited in the early 1920s with envisioning the strategic bombardment campaign of World War II and for his prediction of a Japanese aerial surprise attack on Pearl Harbor. But what people tend to forget are Mitchell's quite incorrect predictions of devastating bombing attacks on U.S. cities by enemy airplanes. They forget that in 1915 he warned that Austro-Hungary posed a serious threat and posited it might send 145,000 to invade the American homeland. And in his scenario of an attack on Pearl Harbor by Japanese airplanes he entirely dismissed the aircraft carrier as a weapon. Instead, he predicted the Japanese would leap-frog land-based aircraft across the Pacific, building airfields as they came, then build an airfield on one of the Hawaiian Islands without anyone discovering them, fly in hundreds of airplanes—also without discovery, and then launch a surprise attack which in four hours would not only completely destroy Pearl Harbor but Honolulu as well. To a non-partisan reader, there is virtually nothing in Mitchell's report that would have been of any help to the defenders of Pearl Harbor in 1941.

In fact, the prophets usually have had far more honor than they deserve. I have no wish to go after any one individual, but some of you may

remember the host of fictional works that appeared in the 1980s and early 1990s all based on the scenario of conventional war between NATO and the Soviet Bloc. Some of the authors of these works are still claiming to see in the future—though a very different future than they saw only 15 years ago.

A third fallacy is that of Direct Causation—that peacetime transformation is vindicated by the ensuing war. Thus the validity of the German decision to embrace combined-arms warfare was proven in Poland and France. But such a direct line between transformation and future military success is comparatively rare. Many, if not most instances of military transformation have been intended for contingencies quite different than the ones they were actually used for. The U.S. Army's adoption of open-order infantry tactics in the 1890s was intended to fight a European conventional army, not Filipino guerrillas. The reformers who influenced Elihu Root to change the U.S. Army in 1899 intended their reforms to organize the Army for defense of the continental United States and the Philippines, not to fight in France in 1917. Similarly, the radicals who engineered the Army's 1950s transformation intended it to fight in Eastern Europe, not Vietnam. The purpose of the Army's 1980s transformation was to combat the Soviet Union, not to fight in the Persian Gulf. Some might say that the ensuing wars, even if unplanned, showed that transformation was necessary. But the real lesson seems to be the danger of believing that Transformation will provide a clear and predictable path to winning the next war, since history would show that the "predicted" contingency rarely occurs.

The Last Fallacy is that the Reformers are Progressive, that they really are thinking outside the box. In fact, a historical case can be made that most of the reformers are usually conservatives, if not outright reactionaries. From 1870 to 1898 the Army's commanding generals—William T. Sherman, Sheridan, John M. Schofield, Nelson A. Miles—all commented at various times on the impact that new weaponry and industrialization might have on war. But none of them expanded his horizons beyond the continental United States. None foresaw that the Army's future lay as an instrument of global power in expeditionary service in the Caribbean, the Pacific, Asia, and even Europe. George Patton correctly determined the weaknesses in the massive, slow-moving armies of World War I, but his vision of the future in the 1920s was a return to the saber and the bayonet. General Matthew Ridgway correctly identified the dangers of Eisenhower's Massive Retaliation policy, but his own solution was a return to the battlefields of World War II, albeit with tactical nuclear weapons.

What about today's visionaries? Far too many have a distressing tendency to extrapolate from today's headlines a direct line to the future. If CNN runs a story on the moribund War on Drugs, in short order they visionaries will be fulminating about "Narco-Terrorism." If U.S. troops get into a firefight in some obscure city in a country most Americans could not locate on a map, then you can bet the visionaries will start castigating the armed forces for failing to study urban warfare. If a Special Forces team guides an aerial strike onto some unprotected guerrillas, then this

becomes the visionaries' "New American Way of War." In short, most of the visionaries are reactive, not proactive.

Moreover, taken as a group the visionaries are also deeply conservative. Take for example those who have taken as their mantra the light, agile, fully deployable, lethal Army as a revolutionary concept. Then examine this quotation from one prominent military reformer: "Our Army is perhaps now in the most important period in its history. It is in a period of transition never before known in the history of arms. If the Army is to [continue to] play as important role in the service of our country as it has in the past, it is essential that we capitalize on technology and scientific advances. We must exploit strategic mobility by emphasizing light and compact equipment that will be easily air transportable. We must exploit Army aviation and battlefield mobility while at the same time ensuring the ability of our infantry to [...] fight at the end of the trail. We must exploit electronic technology, capitalizing on better communications and the practical use of target acquisition devices. At the same time we cannot become bogged down with great weight and complex maintenance. Finally, we must give attention to our manpower. Our professional soldiers must either be skilled fighters or highly trained technicians capable of operating the new and complex weapons and material of war. That is a big order. However, we should achieve a truly revolutionary type of Army—an Army that can gain and retain the initiative in any type of military situation."

Who is the speaker? The Chief of Staff? Douglas Macgregor? The Strategic Studies Institute? The latest Army Mission Statement? No, it is General William Childs Westmoreland speaking to a conference of senior Army commanders. The year is 1957—nearly half-a-century ago.

In conclusion, I would reiterate my original statement that history is one of the founding intellectual cornerstones of strategic studies and of the transformation dialogue. But as it is currently used in the debate, it is far less of a guide than it could or should be. Transformation advocates have relied far too excessively on the Interwar Era for their conceptual models. Even further hampering the discussion is a number of fallacies that are accepted as truths—of which perhaps the most insidious is the Prophet Without Honor. It is time to rethink the parameters of the debate. Time to spend less time on forecasting the future by intuition and a quick reading of today's newspapers. Unless one is to put one's faith entirely on the ability of science to deliver us an untroubled future and to have an equal faith in progress without cost—perhaps two of the greatest historical fallacies of all—we must continue to look to the past for guidance. And this in turn requires looking to the past not for confirmation for preexisting dogma, but as a source of understanding and appreciation. Until such understanding is achieved, those who advocate transformation are more likely to be driving in reverse than towards the future.

Transformation: The Pursuit of Catalysis – A British View

*Michael Codner**

British Attitudes to "Transformation"

The word "transformation" does not sit easily in the British vocabulary of military activity. There are good reasons. First, it is not a useful analytic term partly because it is currently being used as a catch-all for several processes and objectives of adaptation to an evolving strategic environment and of exploiting opportunities of new technology. British civil servants are suspicious of military cant that does not lend itself neatly to definition by denotation.

Secondly it is in the origins of its present senses a United States (U.S.) military-political term launched into wide use by Donald Rumsfeld to force change upon his own military establishment and to secure and protect funding. The expression, "Revolution in Military Affairs" served a similar purpose in announcing the need for radical change in military processes, capabilities and structures to exploit the increasing rapid advances in information technology.

The British system of governance has little use for 'catalytic' language of this kind—that is expressions used in a formal sense to invoke and sustain rapid change. There have been very few occasions in recent history when a British politician has had the thought leadership to be able to force change upon a recalcitrant military. In any event the British defence establishment is far more hierarchical and arguably more integrated in relevant aspects than that of the U.S. There is no-one to badger. The British 'empirical' approach favours evolution over revolution. The establishment does not easily accept longer term vision and is suspicious of academic models for the future that are not born of experience rather inspired by predictions of what technology can deliver. And a medium military power, albeit wealthy, cannot afford to abandon legacy systems and practices early or embark on a series of giant and costly experiments which usually, as history has shown, deliver far less than their proponents have advertised.

Indeed in the British political system a government that has been in power for some years during which it has conducted an extensive Strategic Defence Review (SDR) to consolidate a post-Cold War change of direction cannot easily announce in the middle of its period in office the need to 'transform' its military. To do so would invite justified criticism that it had been on the wrong route since 1997. The events of 11 September 2001 might have provided an opportunity for the government to embark on radical change. However the issue of adequate homeland security was

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debated at the time of SDR and the government did not take the advice of the House of Commons Defence Committee and devote greater resources to what it considered to be minimal threats at home save Northern Ireland. It could also have been accused of inviting the threat of asymmetric attack by embarking on an expeditionary strategy in the first place. So in launching a 'transformation' in say 2002 it would have acknowledged that transformation was necessary because the government had been wrong in the first place.

For these reasons the United Kingdom has not embraced military transformation in name wholeheartedly until very recently. Although NATO formally accepted a need to 'transform' at the 2002 Prague Summit, transformation did not get a mention as something with a British element in UK policy papers and presentations by politicians and officials until scant reference in the 2003 Defence White Paper. This document referred to "the importance of the continued transformation of our forces to concentrate on the characteristics of speed, precision, agility, deployability, reach and sustainability. Key to this is our *[the UK's*] ability to exploit the benefits of Network Enabled Capability, precision munitions and the development of effects-based planning and operations."[1] Significantly in December 2004 The Chief of the Defence Staff at last acknowledged that transformation "far from being the result of budgetary constraints or political doctrine, [it] is now the central pillar of British military thinking".[2]

Elements of Transformation

Nevertheless analysis of the elements of what is generally meant by transformation shows that Britain has actually been transforming in the widest sense since the mid 1990s. The UK is very serious about its expeditionary military capability and the need for this to be relevant to evolving strategic needs. In all the important strands Britain is effecting change or there is an accepted need for change albeit under discrete and different labels. Perhaps the UK is ahead of the rest of the herd of cats in this respect and there is actually something for Whitehall to be smug about. However the inevitable friction of a stretched defence budget and long acquisition timescales holds the full realisation of the best of intentions a long way off.

The UK certainly views the process of transformation as very important insofar as it is understood in NATO and within the U.S. There is a broad political consensus not seriously undermined by Europhilia that the military strategic relationship with the U.S. remains of paramount importance to British security policy however difficult the rationale for politicians and officials to articulate.[3] And while there may be private

1 *UK Defence White Paper Delivering Security in a Changing World,* London, The Stationery Office, December 2003.

2 Michael Walker, "Transforming the UK Armed Forces," *RUSI Journal,* February 2005.

3 The Secretary of State for Defence, Geoff Hoon, implied in his answer to a question following a lecture at RUSI on 13 April 2005 that in his view the 'Special Relationship' was more a matter of sentiment than reason.

concerns amongst some policy makers in UK as to the future utility of NATO in the longer term as a military organisation, it must be robustly supported publicly and its relevance worked at chiefly because of its significance in the trans-Atlantic relationship.

Transformation can be understood to comprise different elements depending on the context—NATO, the U.S. or the forces of another Ally, friend or potential coalition partner. Indeed, as others have pointed out,[4] the concept of transformation is itself evolving and collecting wider connotations. For NATO the definition is broadest and most challenging because of the number of nations involved and their differing stages of development and levels of resourcing. It could be said to include:

- a shift in principal focus from common defence to expeditionary operations and the new roles that are implied;
- development of the right capabilities for military operations in the evolving strategic environment including agile, deployable forces with good situational awareness and precision weaponry;
- adoption of Network Enabled Capability (NEC) to generate the most efficient, flexible and responsive forces that technology will allow and, as importantly, to develop and sustain interoperability with the U.S.;
- development of common doctrine for integrated use of these capabilities in the context of coalition expeditionary operations not only for sustained high intensity combat but also for stabilisation and reconstruction.

And arguably NATO also needs to:

- produce a new and more robust Strategic Concept, decision making processes, and force generation procedures to govern and service these developments;[5]
- ensure that its military activities are properly integrated with the non-military effects that are necessary to the building of security. This is not an easy task for NATO bearing in mind that it lacks the institutional instruments of a single nation or indeed of the European Union.

For the United States the meaning of transformation is probably most specific and far reaching with the widescale adoption of Network Centric Warfare (NCW) at its core initiating radical change to doctrine and organisational structures. The trans-Atlantic interoperability issue places the U.S. model of transformation very much as the driver of transformation elsewhere. It is not necessarily, however, a headmark both for pragmatic reasons of affordability and because the U.S. experiment in NCW driven doctrine and organisation has yet to be proved to do the job.

4 For instance James Bergeron, "Transformation and the Future of Berlin Plus," *RUSI Journal,* October 2004.

5 Mark Joyce, "Transforming NATO – A Political and Military Challenge," *RUSI Journal*, June 2005.

The British Record in Military Transformation

For other Allies and 'friends' there is a rudimentary menu here against which they can set their own requirements for transformation, their plans and indeed their achievements. The UK position is not exemplary but is significant because Britain is a highly experienced medium scale expeditionary power. Her record is as follows.

Expeditionary Focus The 1998 SDR confirmed the British shift in focus from homeland and common defence to expeditionary operations which was underway in the 1990s with the formation of the Joint Rapid Deployment Force[6] and Permanent Joint Headquarters. Following the events of 11 September 2001 the New Chapter to SDR endorsed the expeditionary strategy but widened its reach (for force planning purposes) from the Gulf to worldwide. It also defined Britain's military contribution to global counter-terrorism in proactive expeditionary terms. The 2003 White Paper and its 2004 Capabilities Supplement announced the need for change but in the number and scale of concurrent operations that could be undertaken rather than any significant alteration of the overarching strategic concept or radical reform of force structures or doctrine.

Capabilities Accepting the problem of legacy capabilities the UK is evolving its force structure to permit rapid proactive deployment of full war fighting capabilities which are agile and flexible. It will however be the next decade before some key elements are in service notably the Future Rapid Effect System (FRES) providing medium weight combat vehicle capabilities and new aircraft carriers. The recent highly political debate over the restructuring of the British Army was about the efficient management and employment of a slightly reduced number of existing infantry battalions with strong regional affiliations rather than about transformation of the ways in which ground forces will be used.

Network Enabled Capability

NEC is the most significant single British initiative relating to its own and other perceptions of transformation. The process of digitisation has been underway in the maritime and air environments since the 1970s. In the very much more complex ground environment it was not until the 1990s that information technology had reached a stage that would permit wholesale networking on the one hand and information fusion from intelligence, surveillance and reconnaissance sources on the other. It has been the problematic introduction of the Bowman communications and information systems that has been a dominant factor. Since the 2002 New Chapter of SDR the more comprehensive programme of NEC has emphasised both the inter-service (joint) aspects and the integration of the

6 Since SDR the Joint Rapid Reaction Force.

strategic, operational and tactical levels of command and control. The capstone strategic level project is the Defence Information Infrastructure (DII). The two driving factors to UK NEC are clearly the demand for greater efficiency in military capability on the one hand in the face of an overheated equipment plan and the need to build, sustain and maintain interoperability with U.S. forces on the other.

Is NEC the same as NCW? Needless to say the words 'enabled' and 'capability' were carefully chosen to replace 'centric' and 'warfare' and NATO has adopted the same terminology. In the early days of the introduction of NEC British officials were at pains to point that NEC would enable British forces to apply current doctrine using existing command and force structures more efficiently rather than to impose the new models of both presented by NCW theorists. So elements of NCW such as smaller dispersed formations, reachback of headquarters and logistic services, and the delayering of command structures do not feature in UK NEC. The approach is typically British in that it is incremental and evolutionary accepting the realities of affordability, legacy systems and acquisition timelines. The implied process is one first of importing degrees of networking to enable existing doctrine and procedures then allowing the doctrine and procedures to evolve to exploit the network's potential as further degrees of networking are achieved. The process is formally presented as three NEC Maturity States:[7]

- **Initial** – Interconnection Phase. Short term improvements in capability involving minor organisational changes and equipment enhancements particularly in communications. Current doctrine will be largely unchanged.
- **Transitional** – Integration Phase. Medium term improvements in capability involving incremental changes to doctrine and equipment but integration of technical systems and major organisational change
- **Mature** – Synchronisation Phase. Developed doctrine, organisations, process and equipment including "dynamic creation of mission groups enabled by distributive collaborative working."

A key official has recently stated that there is no timescale for completion of the Mature Phase and that it is something of a permanent aspiration.

This practical approach allows for other factors to influence evolution notably unpredicted changes in the strategic and political environment and lessons to be learned from the U.S. experiment. A U.S. viewpoint might be that the UK is thereby condemned to being forever 'behind the curve.' Indeed General Sir Michael Walker[8] has endorsed the need for accelerating the pace of change and defines British transformation thus: "The stark truth is that we have not developed enough of that capability (*flexible, sustainable and deployable forces that can grasp fleeting opportunities to fight and win)* and we need to do so—fast. We call this process transformation."

7 *Network Enabled Capability: Joint Services Publication 777* is available at http://www.mod.uk/issues/nec/index.html.

8 Walker *ibid.*

Effects Based Operations

The UK focus on Effects Based Operations (EBO) that seemed to take wing following the Kosovo air campaign. Like 'transformation' EBO in its British usage is a bit of an ontological and semantic nightmare. It could be argued that it is no more than a re-presentation of time-honoured principles relating to the purposeful application of military force towards policy ends. None the worse for that if it has the credibility to engage the right audience and communicate genuine truths.

There was an official categorisation of eight intended strategic effects in the 2003 White Paper as Prevent, Stabilise, Contain, Deter, Coerce, Disrupt, Defeat and Destroy which somehow trivializes the concept when it is set against the panoply of classical strategic theory on the subject. And what of some of the positive strategic effects? Reassure and Repair come to mind as equal contenders. One very positive outcome of EBO has been a recognition that military effect contributes to grand strategic effect and that military action in any operation must be integrated or at last coordinated with that of non-military agents.

On the negative side there is arguably an over-emphasis in official British discussion of EBO on the perceptual or cognitive domain. There seems to be a belief that coercion is a philosopher's stone. If one understands one's opponent well enough and can use weapons subtly enough through precise targeting all military operations can bring about compliance without the need for physical military control or significant destruction of capability. Recent history (The 1982 Falklands War, 1991 Gulf War, Kosovo etc.) suggests otherwise. Ultimately of course conflict termination generally depends on the assent or compliance of parties and this is a cognitive activity. And an operational concept emphasizing the use of coercion can minimize the actual use of violence in delivering effects. But it is a matter of high pay off at high risk and, if it is to be effective, almost invariably needs to be supported by 'branches' in the operational plan involving denial of capability. Also managing perceptions is not simply a matter of having enough of the right sort of intelligence. The inter-relationship of events and perceptions does not lend itself to exact scientific measurement and may never do so.

Stabilisation and Reconstruction

For the British armed forces stabilisation and reconstruction are not new roles although the particular experience of military occupation has not been visited for many decades. Nor is counter-insurgency a new phenomenon although it has not in the past typically been a multinational task and this brings new problems of cultural differences among participating militaries. Since the days of empire British forces have been trained to cope with General Krulak's Three Block War. In this environment there is the need for a rapid and frequent shift in practices and mentality between the military use of force involving overwhelming use of violence to achieve

decisive events on the one hand and the constabulary use of force on the other where minimum violence is used often to achieve and sustain conditions which will allow other non-military agents to effect decisions. This versatility is at the heart of the training of British ground forces.

Recently a senior British officer spoke of "fighting with the Americans not as the Americans." The phrase is interesting because it would not have been used before the recent Iraq War. U.S. and UK doctrine are fairly similar in advocating the manoeuvrist approach and mission command and in most other aspects. In practice however their ground forces in particular behave very differently in complex situations. There are some political and cultural differences for instance in the emphasis on force protection and approach to military risk. A British view might be that British forces need to continue to adapt in this respect to changes in the operational environment but transformation is needed by some other coalition partners.

The UK is unlikely to create forces specifically for the roles of stabilisation and reconstruction. The classic British argument is that forces configured for sustained high intensity combat can be used for other missions but that the reverse is not true. A more robust argument follows the lines that military forces have a particular role in complex emergencies in which escalation dominance, that is the ability to revert to combat if other parties escalate violence, is an essential component of all but the most benign military activities. Paramilitary forces who do not have this "coercive edge" are reliant on military forces from somewhere to provide it. If the mission does not require military force, police, gendarmerie, coastguard, customs, or private security personnel should be used. And the UK will not be providing the gendarmerie or coastguard elements. This position does provide some balance of investment problems for UK where there is a need to resource capabilities for the military specifically for stabilisation and reconstruction.

The Future for British Transformation

The UK's particular problem is in funding its very ambitious expeditionary strategy while providing cash for some of the specific elements of transformation, in particular NEC, precision weapons and suitably agile modern platforms. NEC especially invites political criticism that the advertised efficiencies it brings become economies in boots on the ground. Although the need for the acquisition process to exploit new information technology as it becomes available is well understood, the adoption of NEC will be maddeningly slow.

Connectivity and the ability to share an operational picture with U.S. forces across the board is not sufficient to enhance and sustain interoperability. America's increasing lead and radical intentions will enhance the existing problem of behavioural dissimilarities. These are not so important when forces of different nations can be separated by geographical area and role. But if the U.S. is using widely ranging dispersed formations in a non-

linear battlespace without the constraints of Fire Support Co-ordination Lines, waterspace management, close air support rules and other procedural methods of deconfliction, geographical and role separation will not apply. Multinational integration will not improve and is likely to suffer. As General Walker has implied, from a British viewpoint accelerating the timelines for change is perhaps what transformation is all about rather than the change itself.

One solution to the funding problem is for the UK to pursue some strategic role specialisation perhaps comprising early engagement alongside the U.S. in combat operations, framework nation command and control for European operations, and initial stabilisation relying on smaller more agile forces and specialist infantry in particular. Britain would hope to avoid or extract from long term lower level peace support commitments which many other nations are able to make. The 2004 Defence Command Paper acknowledges that Britain cannot maintain the full range of combat capabilities and implies developments in this direction as does the pattern of operations of the last decade. This course would preserve a degree of military autonomy and be designed to enhance the UK's influence in world security in judicious choice of roles in elective operations. However the envisaged force structure would demand a very evolved state of NEC and particularly high capacity to integrate with U.S. forces.

One final point concerning the semantics of 'transformation' bears mention. It is probable that a new U.S. Administration or Secretary of Defense will decide that 'transformation' has had its day, that the establishment is now immune to its catalytic effect, and that Congress will need a new label to which to provide funding. Words such as 'metamorphosis' or 'transmogrification' come to mind! For UK the consequences would be minimal. Some Whitehall mandarins, now a bit more senior, would smirk behind their fans. 'Transformation' would cease to be given due mention in official addresses and papers and the new word might tentatively appear in its place if a second U.S. Presidential term looms. However NATO, which has created an Allied Command for Transformation, runs the risk yet again of being perceived across the Atlantic as not as a Fairy Godmother but as rather a dull moth.

Transformation Reconsidered – The Iraq Experience

*Colonel Peter R. Mansoor**

What a difference a few months can make. In April 2003 the United States and its coalition partners stood triumphant over Iraq, the latest in a long historical line of conquerors of Baghdad and the lands bordering the Tigris and Euphrates Rivers. The lightning campaign seemed to vindicate the emerging doctrine of rapid, decisive operations ("shock and awe") and its corresponding emphasis on light, rapidly deployable forces, precision weapons, and long-range fires. Wars of the future would be won by locating key command and control nodes, targeting them with long-range precision weapons, and attacking rapidly through gaps in formations to strike deep into the enemy defensive network and destroy it at its core. Campaigns would be quick, decisive, and compared to industrial-age wars, relatively bloodless. Time, however, has a way of adding clarity to current events. By the summer of 2003 coalition forces were embroiled in an increasingly nasty occupation beset by a growing insurgency and hamstrung by a lack of forces required to rebuild a state that although left relatively unscathed by bombs and bullets, had destroyed itself from within through massive looting and wanton pillage.

It is a debatable point whether a rapid, decisive operation as envisioned in March 2003 is preferable to a more cadenced offensive that ensures control of populations and lines of communication along with the destruction of enemy forces and the conquest of territory. One fact remains clear. An occupation is much more successful when the local population psychologically feels defeated. General George S. Patton, Jr. intrinsically understood this when he ordered a few salvos of artillery fired into every German town approached by the Third Army, "to let the inhabitants have something to show to future generations that the Third Army had passed that way." (*War as I Knew It*, p. 294) Today such callousness would earn Patton a reprimand if not relief, but the fact is that Germany, Italy, and Japan were successful occupations in large part because the Germans, Italians, and Japanese were sick of war and ready to embrace an occupation that offered a better life ahead. The same cannot be said of the Iraqis in the Sunni triangle, who were largely untouched by conventional combat operations until the aborted assault on Fallujah in April 2004 and its more successful counterpart in November of the same year.

What we learned—or should learn—from this experience is that toppling a government is not the same thing as occupying and stabilizing a country, and the forces required to accomplish the former objective are not necessarily the same as those needed to succeed in the latter. Cruise missiles

* U.S. Army.

and JDAMs can destroy, but they cannot build. Put another way, long-range sensors and shooters can win a war, but they cannot create peace. For that goal, boots on the ground are required to provide security, conduct humanitarian support and civic action, and stabilize the land the way that Roman legions once did, by—in the words of historian T. R. Fehrenbach—"putting your young men into the mud." Or sand, for that matter.

A war plan predicated on providing sufficient forces for regime change will work only if a certain set of assumptions come true—namely, that the local population either accepts the presence of foreign troops or remains passive in their presence. In the case of Iraq, this assumption was true for roughly 80 percent of the population. For the other 20 percent, mostly Sunni, who benefited from Saddam Hussein's rule, however, the presence of foreign invaders on Iraqi soil was an anathema; some chose the route of resistance by launching an insurgency shortly after the collapse of the regime. When planning assumptions about the post-regime environment proved invalid, formations that had been meticulously organized, trained, and equipped for the march through the Republican Guard to Baghdad found themselves in an urban guerrilla conflict for which they were far less prepared. Shortage of forces left large swaths of Iraq untouched by a coalition presence and kept open borders through which Islamist terrorists would soon filter. Iraqis poured into the streets to loot and pillage any facility left unguarded, which, given the rapid collapse of the Ba'athist regime, included nearly all government facilities. Not only would the coalition face a lack of civil servants to run a government, but the seat of government itself would require massive rebuilding and refurbishment. None of these circumstances were envisioned by coalition planners, nor did the lean ground force structure and logistical backbone have the excess capacity to manage the situation. Massive reinforcements of combat forces, military police, engineers, civil affairs specialists, psychological operations units, and logistical organizations were required to provide security, stabilize the country, and begin a long-term process of civic restoration and creation of a new and democratic form of government. The resulting stabilization campaign would take not weeks or months, but years.

There have been suggestions that what was needed at this point were specially designed reconstruction divisions to relieve the combat formations and prosecute "Phase 4" operations—the nation-building tasks for which U.S. Army combat units were neither designed nor intended. The fallacy of this line of reasoning, however, is that there would never be enough of these units available to occupy an entire country or establish a functional rotation system to source an extended campaign. The creation of a unique force structure for nation-building, separate from and lacking the capabilities of units capable of major combat operations, would also be a prohibitively expensive proposition. Wealthy as it is, the United States cannot afford two armies, one meant for war, the other intended for use in operations other than war. The alternative is to embed the capabilities required for civic and humanitarian action into all ground combat units. This course of action has the added advantage of allowing an instanta-

neous transition from combat to stability operations; indeed, it allows a simultaneous execution of the multiple aspects of 21st century warfare—combat, peacekeeping, and humanitarian operations.

The operations of the Ready First Combat Team in Iraq from June 2003 to July 2004 are in many ways representative of this construct. Trained and organized for major combat operations, the 1st Brigade, 1st Armored Division and its field artillery, combat engineer, and logistical attachments found itself instead immersed in an urban insurgency in northeast Baghdad. The combat team received additional assets in the form of military police, civil affairs teams, psychological operations units, joint tactical air control teams, and engineer ordnance demolition squads to prosecute counterinsurgency operations and begin civic restoration. The ad hoc organization worked well, although the lack of dedicated rotary wing aviation or unmanned aerial vehicles was a notable shortfall. An infusion of money under the Commander's Emergency Response Program enabled the combat team to contract with local businesses to refurbish schools, medical clinics, playgrounds, and other public facilities, which both put local Iraqis back to work and enhanced the perception that better days lay ahead. More could have been accomplished in this regard had increased funds been available with less red tape attached to their use. The brigade staff was stretched between combat operations and civic restoration without an adequate structure to deal with both. Public affairs officers, civil-military affairs personnel, and information operations sections were all taken out-of-hide and in the latter case were dual-hatted with fire support functions. These specialists should reside in the base organization of every brigade combat team (unit of action) and not be added to the staff after a deployment commences. The experience of the Ready First Combat Team nevertheless confirmed that adequately augmented, a brigade combat team built for major combat operations could also be used for stabilization and reconstruction missions.

The experiences of the Ready First Combat Team in combat operations in Iraq also demonstrated the utility of tracked armored vehicles in counterinsurgency operations and urban warfare. Abrams tanks and Bradley infantry fighting vehicles were much more survivable than uparmored HMMWVs when used to clear routes of improvised explosive devices and proved indispensable in intense urban fighting in Adhamiya, Sadr City, Karbala, An Najaf, Fallujah, and elsewhere. A reduction in size and weight is desirable to enable these vehicles to better negotiate narrow city streets and traverse bridges that invariably cannot withstand heavy loads. The protection and firepower these vehicles provided, however, gave American soldiers a crucial edge in close-quarters combat with Sunni insurgents and Shi'ite rebels. Abrams tanks and Bradley infantry fighting vehicles belonging to the Ready First Combat Team took hundreds of hits from rocket-propelled grenades, mortars, improvised explosive devices, and small arms fire, yet not a single crew member was injured or killed while protected inside the armored envelope of these vehicles (although several were killed and wounded when hit while exposed outside their hatches while man-

ning machine guns and other weapons above the level of the turret roof). The firepower of the 120 mm main gun on the tank and the 25mm chain gun on the infantry fighting vehicle when firing high explosive rounds was impressive and provided the most effective and deadly counter-sniper weapons on the battlefield. Rather than the outdated dinosaurs of current thought, the deadly calculus of the urban battlefields in Iraq have once again shown us why armored vehicles exist in the first place.

While it is essential for some armored vehicles to have the capability to move via airlift, the requirement for all armored vehicles to fit inside an intra-theater transport plane such as the C130 is unnecessary. The vast majority of Army equipment historically has been and in the future will continue to be moved by sealift. The capability of current fast sealift ships to move thousands of tons of materiel over extended distances within days and weeks negates the need to move more than a brigade or two by air within hours and days. The Stryker and its variants fit the need for the air-mobile system; therefore, the future combat system should be designed primarily for combat survivability with only secondary consideration given to air transportability. Size and weight reductions are desirable more for the advantage they will give to soldiers fighting in complex terrain rather than to ensure the vehicle can move up the ramp of a C130 Hercules. An armored vehicle weighing 30–40 tons will provide a great deal more survivability against hand-held anti-tank weapons than one weighing only 20 tons. Given current technology, the latter vehicle would survive only if it avoided close contact with enemy forces. What the battlefields of Iraq have shown us, however, is that despite our desire to destroy the enemy from afar, in counterinsurgency operations the maximum engagement range is usually less than 200 meters. This is historically the case whether one examines guerrilla conflicts in jungles, cities, or mountains.

History has shown that armies which can adapt to changing circumstances are more successful that those that remain tied to doctrinaire war-fighting concepts that fail to change with time and circumstances. The U.S. Army seems to understand this well—perhaps all too well, if the proposed restructuring of the entire army based on air transportability standards is any indication. A more nuanced reading of history would also show that leaders often cannot judge which weapon system or organization will prove to be the next war winner, and a more flexible, varied, and adaptable organization is preferable to a homogenous, high-tech force that is highly lethal in envisioned major combat operations, but may not be the force we need to fight the wars we wage unless we are fighting the enemy in the mirror. In the mid-1930s the U.S. Army could only hazily discern the impact of armored divisions on the future battlefield, the Army Air Corps had no program to develop a long-range escort fighter, and the U.S. Navy still had more battleships than aircraft carriers. Realization came quickly after the six week German campaign that defeated France in May–June 1940, the failure of the Schweinfurt-Regensburg bombing raids on 17 August 1943, and the surprise Japanese attack on Pearl Harbor on 7 December 1941. What a difference a few months can make.

Aspects on Force Structure and Stability and Support Operations (SASO) – Necessities and Illusions

*Colonel Wolf-Dietrich Kriesel**

Change is the only constant factor in life. This may seem to be very close to the brilliant flash of the obvious. Nevertheless, people often tend to deny change rather than to adapt to it. A tendency, which is not uncommon in the military too—to put it mildly. Which is astonishing, as military history has seen quite a few sweeping changes in the way of doing business. Sometimes the change came about through technology: the advent of gunpowder and, subsequently, firearms eventually did away with the medieval knights. New procedures were another source for change: the French *levee en masse* proved to be superior to the traditional armies of this time.

Today, Stability and Support Operations (SASO) are by far the most frequent type of military operations. The planning and development of military capabilities and force structure have to take this fact into account. The key-questions are: What are the requirements for armed forces in Stability and Support Operations? How can we adapt our capabilities to meet these requirements?

The answers to these questions require deciding upon the nature of SASO: Are they the continuation of the traditional battlefield by other means? Or do they constitute a substantial change in doing military business, which warrants appropriate adaptation and a dedicated approach?

Stabilisation Operations

Stabilisation operations are a part of the broad spectrum of international conflict prevention and crisis management.

Within SASO, tasks may vary from observer missions to peace keeping operations up to and including the use of deadly force to include the fight against international terrorism. By definition, stabilisation operations aim to prepare the ground for a peaceful development. Hence, SASO often will be an indispensable prerequisite for nation-building activities; they are, however, by no means nation building in itself. SASO differ substantially in terms of aim, principles and means from high intensity war fighting.

Stabilisation operations may, inter alia, encompass observation, monitoring and supervision of a peace settlement, the forcible separation of forces, the enforcement of sanctions, establishing and maintaining protected areas, demobilisation operations or guaranteeing or denying freedom of movement. Armed forces have to be able to neutralize peace-disturbing elements and to defend themselves or the population entrusted

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to them against limited attacks of regular or irregular forces. They have to create the framework for nation building and thus be able to closely coordinate with International Organisations, Governmental Organisations and Nongovernmental Organisations. Especially in the beginning of SASO—with civil structures often being severely degraded or even non-existent—tasks pertaining to law and order and/or civil development may very well be an integral part of the mission. This does not change, however, the nature of these tasks: they are and remain essentially non-military functions.

Factors

War fighting is based on well-established principles. Presumably, there are comparable factors bearing on Stabilisation Operations:

Objective: Political objectives—and quite frequently: civil authority—drive military decisions at every level. A defined end-state of the operation should be an integral part of the mission statement.

Perseverance: Stabilisation Operations more often than not involve protracted struggles; success will generally not come easily or quickly. Forces committed as well as plans have to be geared towards sustainability. This does not mean, however, that SASO are passive by nature. To the contrary: seizing and retaining the initiative is as important as it is on the battlefield.

Legitimacy: Within SASO legitimacy is of great concern, because the success as well as the security of forces employed rests to a significant extent on whether or not an operation is perceived as legitimate by all relevant parties concerned. An international mandate may very well be part of the equation, likewise impartiality and adherence to appropriate, consistent standards whilst executing SASO.

Restraint: Contrary to combat operations the use of force may not be the prime choice within SASO, sometimes it will even be effectively banned with the exception of self defence. As a rule, stabilisation forces will have to act in proportion to the situation at hand, which may mean anything from mediation in a local quarrel up to the use of deadly force to overcome outright insurgency. Clear-cut rules of engagement therefore are an indispensable prerequisite when engaged in stabilisation operations.

Manoeuvre: As in combat operations, it is imperative within SASO—albeit on a different scale—to have enough forces in time at the right place. Mobility and freedom of movement will be crucial to achieve this goal, as will be appropriate intelligence in a complex environment.

Unity of Effort: Military leaders must integrate their efforts with both military and civilian organisations to gain a mutual advantage. Unity of effort calls for interagency interaction and co-operation with all other organisations involved. Nevertheless an unambiguous, clear chain of command is mandatory.

Security, Surprise, Simplicity, Morale and Exploitation is as relevant and important within SASO as they are on the battlefield.

Does this mean that SASO simply are another type of battlefield, just like desert, urban areas or mountainous terrain? A battlefield, which lends itself to rapid decisive operations in a network enabled environment? A battlefield, which is rather less challenging, because organized military resistance has effectively seized to exist? A battlefield, which can therefore be handled by own forces more easily compared with the battle proper? In a nutshell: Are SASO a second rate task and therefore can be handled by second-rate forces?

To answer these questions it may be worthwhile to look at the very nature of battlefield operations as opposed to SASO. And, for that matter, to look at the very nature of transformation, which has only come into existence to better and more swiftly adapt to the new security environment, where SASO seem to be the daily challenge and shooting wars are fought every decade or so.

Characteristics

As SASO are an integral part of a world in transformation, the various dimensions of the latter obviously pertain to the former:

- An ever changing security environment, with new players and asymmetrical threats emerging,
- Societies in constant fluctuation,
- Rapid technological developments,
- Innovation taking place at a breathtaking speed, and
- The requirement for a mentality apt to cope with all this, seizing the opportunities rather than being afraid for the risks.

Rapid decisive operations—likewise being part and parcel of this changing world—aim at swiftly winning a battle, a campaign, a war with as little of own losses as possible. Standoff capabilities are the prime choice to combat the enemy. War fighting is enhanced by automation and robotics to an ever-increasing extent. Seek out and destroy is the mission.

There is no such thing as standoff SASO. And its mission is not exactly to seek out and destroy, either. Yet, on the other hand, forces employed for SASO are not NGO employees put in uniform and equipped with firearms. Rather, stabilisation forces are the missing link between winning the war on the battlefield and winning the peace through nation building. By necessity, they have to get entangled with the local population at arms length. Social competence and language skills play a role, because checkpoints and patrols cannot be carried out by proxy. At the same time, the posture of stabilisation forces has to be robust enough for riot control and escalation dominance vis-à-vis asymmetrical assaults or even limited regular military attacks. Compared with the ordinary battlefield identification of hostile elements may prove to be exceedingly difficult in the context of SASO.

At the other end of the spectrum—and still a challenge—there is the vast field of civil-military cooperation (CIMIC) with a plethora of possible tasks

and various kinds of support rendered to civil authorities or even directly to the people.

To make the set-up still more complicated, the early phase of a SASO may coincide with combat operations still going on in the same theatre. In this case civil functions may be severely degraded or even non-existent. This in turn would require stabilisation forces to carry out constabulary functions in the beginning. It should be noted, however, that highly trained and well-equipped military personnel is not available in abundance. Therefore, it appears rather inefficient to employ soldiers in such tasks, which do not belong to their core mission and for which non-military specialists are the better choice as soon as the environment becomes sufficiently permissive.

All of this indicates that stabilisation is a task second to none, not even to war fighting. It is a different, not an inferior mission. It requires specific skills and, e.g. for riot control, even specialized equipment.

Force Categories

The idea of specialised and differentiated forces—generally spoken—is not new. Actually it was introduced into military theory when the first ancient warrior decided to mount a horse and thus invented the cavalry. War fighters as such are not best suited in keeping order and authority and laying ground for nation building activities. The idea of "full spectrum capabilities" is surely valid. It seems to pertain, however, to a given set of forces rather than to the single soldier or unit.

Today's forces tasks encompass war fighting as well as SASO to include humanitarian assistance. This broad spectrum calls for more specialised and differentiated forces that are able to meet specific mission needs and are trained and equipped accordingly. Presumably this suggests developing new categories of forces.

Clearly, there is a continuing need for war fighting capabilities. These forces will have to carry out joint- and network-based-operations of utmost intensity and of highest complexity. They need to be mobile on a global scale and—at least partially—in a quick reaction response mode.

As pointed out earlier on, however, SASO will constitute the majority of the operations conducted by our troops. These forces need to be able to take part in network centric operations to an extent, which enables them to cooperate with all parties concerned.

The course of a conflict may easily lead to a situation, where war fighting and SASO have to be carried out simultaneously or in quick succession in one Joint Operations Area. This phenomenon, sometimes referred to as "Three bloc War," requires an operational interplay between the different force categories involved. Which means that they need to exchange information and harmonize their respective operations. This does not mean that one category can substitute the other.

Another vital, albeit somewhat elusive aspect that differentiates war fighting and stabilisation operations are the soldier's mentalities required.

These are the positively 'be aggressive'—attitude of the warrior on the one side, and the firm, authoritative, yet proportionate action of the peacekeeper on the other. Is it really prudent to require our soldiers to switch from one mindset to a substantially different one without proper preparation including thorough training?

Effects Based Approach

The new era has not only brought about new tasks and missions, there is also a growing understanding that it takes an integrated approach to achieve the desired effects and thus accomplish the mission.

In an Effects Based Approach (EBA) military operations will be conducted as part of a continuous change management process to ensure that both, routine activity and crisis response, support the attainment of strategic aims. The military will often have to support other instruments of power but will sometimes be the supported instrument. This relationship will be dynamic and must be clearly identified. The adoption of an EBA demands collaboration in order to achieve a truly comprehensive view and understanding of interactions and influences between the different dimensions and actors of a conflict. Interaction and Collaboration will expose how the military is able to support or be supported by other instruments of power in a more efficient way.

Within stabilisation operations EBA is particularly important, because the setting is more complex compared to war fighting. As a result, the potential for both, friction as well as synergy, is much higher. All departments and agencies concerned need to have a common understanding of the situation at hand, achieve consensus on the goal, agree on the way ahead, adhere to it and coordinate properly throughout the course of action. Although this process at times tends to be tedious and even cumbersome there is no viable alternative if the desired effects are to be achieved. In essence, this interagency interaction is the equivalent to the joint and combined approach in the military sphere, only on a higher level. And as it is with the latter, the former too is often plagued with petty interests, departmentalised views and all the other forms of sub-optimization which are so well known to everybody involved in complex, multifaceted projects and operations. Yet again: if the strategic aim is not to be put at risk, EBA is the one and only way to success.

But whilst there are still miles to go on this path, substantial progress has already been made. The idea of an Effects Based Approach has been officially introduced into NATO's policy making. Some nations have already accepted this concept; others are about to embark on this venue. If and when EBA is implemented properly and underpinned by appropriate, dedicated stabilisation forces, SASO may indeed prove to be significantly more successful in the future.

Theses

To wrap it up, the following points are offered for further consideration:

1. SASO constitute an important task for today's armed forces, they are neither combat operations of a lesser kind nor constabulary functions.
2. SASO require dedicated forces the capabilities of which differ substantially from those needed for war fighting.
3. Full spectrum of capabilities pertains to a given set of forces, not to the individual soldier, unit or formation.
4. Consequently, the broad spectrum of tasks for the armed forces calls for force categories, which are specifically designed to cope with the respective requirements.
5. Due to their inherent complexity SASO can best be accomplished in the context of an Effects Based Approach.

Transforming for Post-Conflict Operations

Stuart Johnson and Duncan Long[*]

Recent military operations in Afghanistan and Iraq were characterized by the quick defeat of enemy military forces and by relatively small deployments of American forces. This success, which featured the effective use of information superiority, precision strike, and rapid maneuver on the battlefield, can be credited in large part to the ongoing transformation of the U.S. military.

This transformed military, however, is far less suited to the critical, labor-intensive business of post-conflict stabilization. The Armed Forces were not well prepared to respond promptly to lawlessness, destruction of the civilian infrastructure, and attacks on coalition forces that followed hard on the defeat of the Iraqi military. Post-conflict chaos dealt a serious blow to plans to restore essential services and delayed the creation of a representative Iraqi government. In order to ensure a smooth, "rolling" transition to stabilization and reconstruction (S&R) in the future, the United States needs to take the next step in transforming it forces to conduct comprehensive post-conflict operations concurrent with its new style of fast-paced combat operations. This paper proposes a way for the U.S. military to better organize to plan and conduct stability operations alongside major combat operations.

Background

Stabilization and reconstruction operations are performed by combat units augmented with additional civil affairs, military police, engineers, medical, and psyops units. Typically these capabilities are brought to the fore only after major combat operations are over. That clear-cut operational sequence worked well in the past when conflicts progressed less rapidly and where a much larger force was employed and available for stabilization as combat abated (see figure 1).

This model does not, however, apply to recent conflicts because the stability task has become more critical and the forces and time available to -[*]execute it are more constrained (see figure 2). Operations by a transformed U.S. force that leverages speed, information dominance and precision strike to dominate major combat leave few U.S. forces in place to undertake S&R operations. Those forces that are present are combat units not optimized to the challenges at hand. The resultant gap has, in Afghanistan and especially in Iraq, complicated the prospects for nation-building and strategic success.

* National Defense University.

Figure 1
Traditional Model

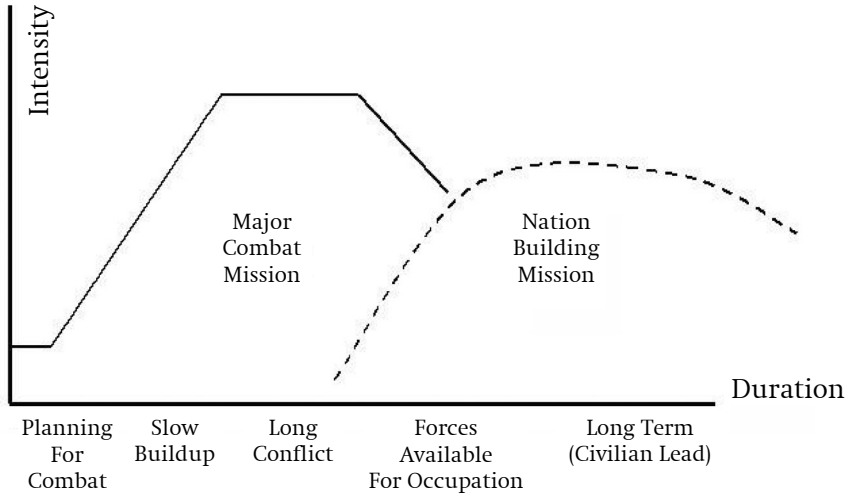
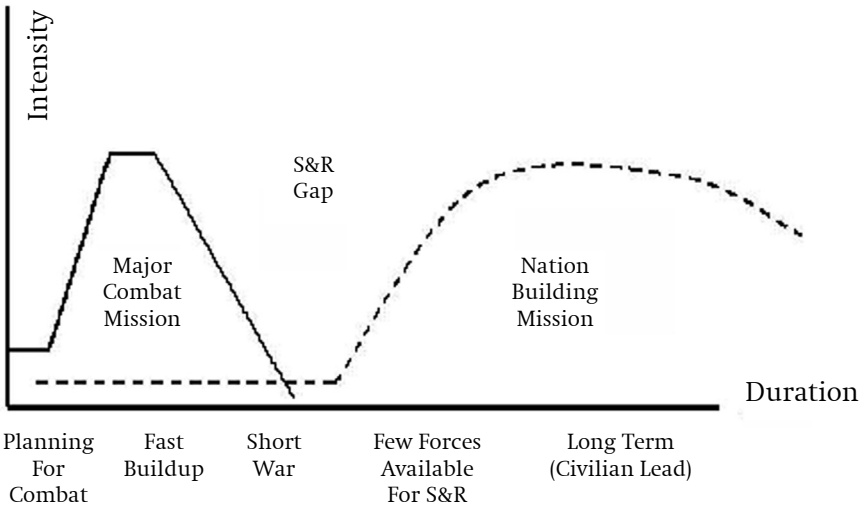
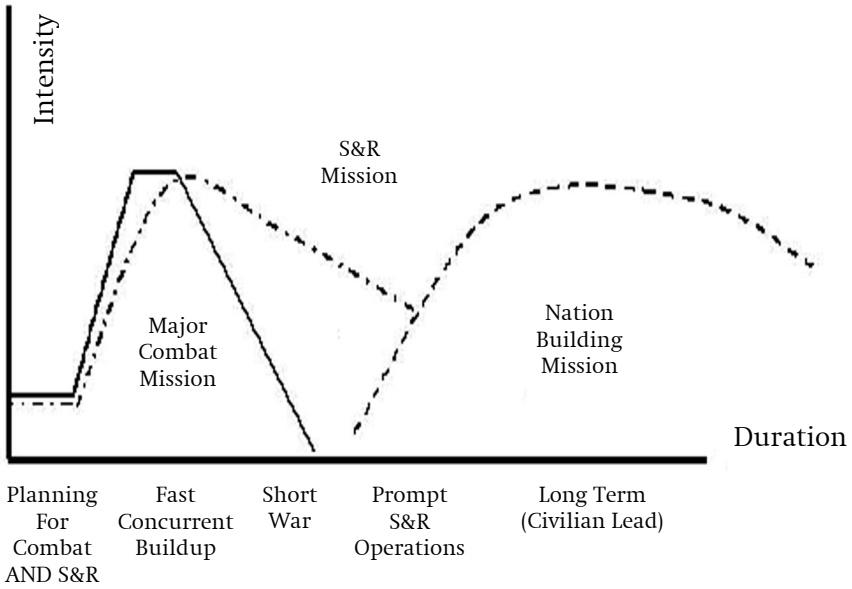


Figure 2
New Challenges (Preemption and Rapid Decisive Operations)



A new concept of operations is needed to fill the gap between the end of major combat operations and the time when civilian agencies can begin the task of nation building in earnest (figure 3). The S&R mission must begin concurrently with the defeat of the enemy military. Demarcating between combat and post-conflict phases no longer reflects what takes place on the ground, where the need for both capabilities overlaps. With stability established and reconstruction underway, the important process of nation-building can proceed. Without this process in place, the United States may win the war but lose the peace.

Figure 3
Transformed S&R Capability (Bridge to Nation Building)



The Operational Concepts

In planning to secure the peace, two main concepts should guide operations. The first is the importance of unity—unity of combat planning and execution with S&R planning and execution, and unity of military effort with civilian effort. All military and civilian agencies must be aware of the political-military goal and make certain each element has the resources in place to achieve its responsibilities in a timely fashion. Once in the field, all lines of authority should lead unambiguously to a single headquarters combining military and civilian expertise in a clearing-house for decision-making. By considering post-conflict needs before going to war, and responding quickly and effectively to S&R needs as the operation develops, it is possible to substantially enhance the prospects for enduring stability.

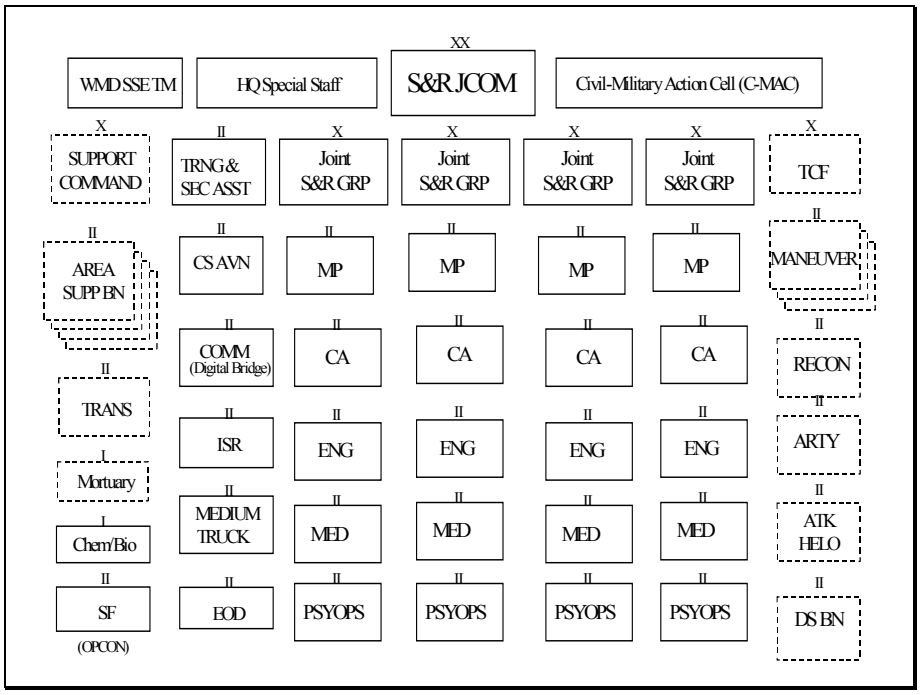
The second key concept is concurrency of operations. To fill the gap between major combat operations and nation-building, S&R forces must begin their work even as combat is ongoing. Military and civilian S&R capabilities must be brought to bear on suppressing resistance and establishing law and order, while at the same time keeping key infrastructure up and running and fostering a return to local government. These tasks are interdependent and time-sensitive. Infrastructure can only be repaired when the area is made safe for work. Conditions for defeating resistance require that the occupying forces make it clear that they are committed to restoring peace, prosperity, and self-rule. With rapid and decisive success in the S&R arena to match that in combat operations, U.S. forces can greatly improve the outlook for successful nation-building.

An Organization for Stabilization and Reconstruction Operations

A key element in putting these concepts into practice is to strengthen the peacetime framework to organize, and to train, the units critical to S&R operations. The force should be joint, calling on the capabilities of all services as well as the capabilities of civilian agencies and other parties. A Stabilization and Reconstruction Joint Command (S&R JCOM) is needed that would

- Oversee the recruitment of personnel for units key to the S&R mission
- Review lessons learned in the field and develop doctrine and contingency plans accordingly
- Oversee training and plan joint exercises to ensure the units' preparations are focused on realistic challenges
- Maintain a planning expertise that can be folded into the combatant commander's staff when planning for combat begins.

Figure 4
S&R Joint Command Organization



A notional organization of an S&R JCOM is shown in Figure 4 above.

S&R JCOM Characteristics

The main characteristics that the proposed S&R JCOM organization adds to U.S. capabilities are:

- Modular in design; scalable in size
- Tailorable to mission requirements
- Capable of controlling limited combat operations
- Joint and potentially multinational

- Trained in regional and linguistic expertise
- Embedded with interagency, civil-military and contractor capabilities
- Directly responsive to combatant commands for peacetime planning
- Organized for functionally integrated S&R operations

The S&R JCOM would be responsible for planning stabilization and reconstruction operations in coordination with the regional combatant commands CENTCOM, EUCOM, PACOM, SOUTHCOM. The command would have a liaison team embedded at each combatant commander's headquarters. This team would participate in contingency planning and provide the combatant commander's staff with information on the capabilities and availability of forces for S&R operations. The team would feed back information on requirements to its home headquarters as any changes in plans emerge. Should the combatant command begin to plan for combat the liaison team would be augmented by planners from the S&R JCOM.

The S&R JCOM commander deploys with the combatant commander to the theater of operations with supporting staff. He is responsible to the combatant commander for the deployment of Joint S&R Groups and allocation of Groups to subordinate combat commands of the Combined Force Land Component Command (CFLCC), usually at the Army division or Marine Expeditionary Force (MEF) level. He also ensures continuous S&R planning and civil-military interface, supervising force debarkation, acclimatization and operational readiness, coordination with support and security forces, and ultimate employment of S&R Groups, either under S&R JCOM or with other commands across the theater. In short, the S&R JCOM commander is the principal advisor on stabilization and reconstruction to the combatant commander, to include theater-wide S&R plans. The responsibilities that would fall to this joint headquarters would require that the commander be a general/flag officer, typically of two-star rank.

The core capability of the S&R JCOM resides in four multi-functional S&R Groups comprised of: military police (MP), civil affairs (CA), engineers (ENG), medical services (MED), and information operations elements (PSYOPS). S&R Groups would conduct operations in sector so as to effect stabilization and reconstruction over an assigned area of responsibility. If that area coincides with a combat AOR, the S&R Group would be in direct support to a specific combat command (i.e., an Army division or Marine Corps MEF). In relatively calm situations, an S&R Group can be task organized to deploy by itself as an S&R JCOM.

Both JCOM headquarters and Group headquarters have competent language capabilities and regional expertise. The ISR battalion would focus on "cultural intelligence" issues—religious, political, ethnic, etc.—as much as overt security risks. Each of the four subordinate S&R Group headquarters of a JCOM could specialize in a geographical region, similar to the practice of U.S. Army Special Forces Groups, with each S&R Group being designated as having one primary and one back-up region of expertise. Regional expertise must also be closely integrated with cultural intelligence gathering so that regional knowledge grows over time to form a sound basis for informed planning and operations.

One key aspect of the proposed organization is the specialized capability integrated with JCOM headquarters. A Civil-Military Action Cell (C-MAC) coordinates for the JCOM commander with personnel from international organizations, nongovernmental organizations, and local and national civilian governments as necessary. Special Staff Sections include a contracting office and a budgeting section to get permanent reconstruction underway quickly, as well as experts in power plant operations, local government administration, judicial affairs, and water/waste management among other specialties.

Other specialized units include a Training and Security Assistance (TSA) battalion, a new unit concept with a unique and crucial mission. The TSA battalion's mission is to work with local security authorities to rebuild the national and local police forces and to train and operationalize a reconstituted national military. A unit dedicated to this mission would relieve the burden on high-demand SOF units that bear much of the responsibility in this area.

Moving from Concept to Reality: How Many Forces and Where to Find Them

The proposed organization describes a division-sized S&R force. It would in fact make sense to have two S&R JCOMs. At least one JCOM should be largely in the active component—transforming for S&R depends on matching the combat forces' ability to respond swiftly and decisively to threats with the ability to swiftly and decisively get nation-building under way. A second S&R JCOM could be composed largely of units in the reserve component. This would still yield the capability to deal with two major contingencies. Attention from the S&R JCOM headquarters would ensure a higher state of readiness than a typical National Guard unit possesses today. A cadre approach, wherein a certain portion of the reserve S&R JCOM remains in the active component, along with active headquarters staff would provide the foundation for prompt mobilization.

Creating two S&R JCOMs does *not* mean adding two division-sized units to the force structure. The Army and Marine Corps already have units with most of the requisite skills, but they are scattered throughout the force. By pulling these units together and organizing them systematically, readying them to be fielded as a coherent whole to fill the 'Gap,' the military could improve its S&R performance without a significant commitment of new resources.

Technology Opportunities

U.S. forces have been trained and equipped for combat, and in some areas are not well prepared for the unique challenges of S&R operations. Technology, in some cases already-mature technology, holds out the promise for help in three core S&R mission areas: security, infrastructure, and human relations. Distributed and networked surveillance sensors, such as

a system that locates insurgents planting improvised explosive devices and passes the location quickly to response forces, could help suppress resistance. Civil infrastructure simulators would give soldiers the opportunity to train to prioritize and manage efforts to bring essential services back on line as quickly as possible and maintain them in a demanding environment. Mobile, real-time language translators would be a boon to S&R forces and should be a research priority; in the interim, improved training tools for culture and linguistics can help build human relations capability. Interoperable communications gear to link military and civilian agencies in the field would enable improved performance across the spectrum of mission demands.

The Way Forward: Improving Key S&R Competencies

While the Armed Forces would not need to substantially alter their end strength to accommodate the S&R JCOMs, it is important that the military enhance its competency in S&R. Successful planning and execution of S&R will require a keen appreciation of the environment into which U.S. forces are being introduced, and the ability to work with (and speak the language of) the indigenous population to restore infrastructure, recreate or reform local security services, and fashion a capable, responsive democratic government. Resources must be devoted to technology that helps soldiers function in challenging S&R environments. The vital importance of S&R must be ingrained in military culture through improved training and education, overcoming the bias that nation-building is a task the Armed Forces can afford to ignore. Finally, America must urge its allies, and the NATO nations in particular, to develop their own S&R capabilities.

The transformation of forces outlined above requires focused attention and a commitment of resources. It is an effort worth making. In failing to transform to meet the challenges of stabilization and reconstruction, our nation risks squandering the battlefield gains of its transforming combat forces. The Armed Forces can match their capability to conduct rapid and decisive combat operations by organizing and planning to conduct timely and effective S&R operations.

Creating Forces for War Fighting, Stabilization, and Reconstruction

*Rob de Wijk**

America's armed forces are trained and equipped for war fighting and have great difficulties in carrying out stabilization and reconstruction operations, whilst most of Europe's armed forces are best prepared for stabilization and reconstruction, but usually are incapable of fighting wars. As a consequence both American and European armed forces cannot deal with the full spectrum of military challenges. Transatlantic partnership in dealing with international military crisis is the obvious option. But different views on crisis management could prevent close cooperation. If the U.S. and Europe hold similar views on the desirability of solving a particular crisis, different obligations or interests could prevent them from teaming up as well. They key question therefore is whether war fighting and stabilization operations can be conduced with the same set of forces. Before dealing with that question I will argue that military culture is an important obstacle.

Military Culture

Johnston views political culture as political codes, rules, receipts, and assumptions, which impose a rough order on conceptions of the political environment.[1] Thus, political culture is defined as a particular pattern of orientations towards political action.[2] The actual use of instruments of power is guided by *strategic* or *military culture*, defined analogous to political culture as traditions, values, attitudes, and patterns of behavior, habits, symbols, achievements and solving problems with respect to the use of force.[3]

For the U.S., simply creating specialized units for stabilization and reconstruction will not suffice if the Americans are not capable of changing their military culture. By maintaining a war fighting posture during the stabilization phase following the actual military intervention, Americans are unable to win the 'hearts and minds' of the population. Concep-

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1 A. I. Johnston, "Thinking about Strategic Culture," *International Security*, vol. 19, no. 4 (Spring 1995), p. 45.

2 Gabriel Almond and Sidney Verba, *The Civic Culture* (Princeton, NJ: Princeton University Press, 1963), pp. 12–15.

3 Ken Booth, "The Concept of Strategic Culture Affirmed," in: Carl G. Jacobson (ed.), *Strategic Power: USA/USSR* (London: MacMillan, 1990), p. 121. See for the original formulation: Jack Snyder, *The Soviet Strategic Culture: Implications for Limited Nuclear Operations* (Santa Monica, CA: Rand, 1977).

tually the distinction between intervention or war fighting and stabilization is extremely important. As a matter of fact, intervening a country is primarily a military challenge, whilst winning the hearts and minds is a political challenge. War fighting requires massive and overwhelming force to gain a military victory, whilst stabilization requires the constrained use of force to create conditions for economic and political reconstruction. Too much force will put the political process in jeopardy.

Creating a European war fighting capability is equally fruitless, if Europeans do not adapt their military culture. As the defense of common interests or the return to war fighting conditions during a stabilization phase cannot be ruled out, the Europeans have no other choice but to solve this problem. In addition, it will enhance the credibility of the EU as a political actor, so that it could become a strategic partner of the U.S.

Operations Enduring Freedom and Iraqi Freedom and the subsequent stabilization operations made the consequences of the American and European deficiencies painfully visible. In Afghanistan and Iraq, Americans experimented with an innovative doctrine and advanced technology and were able to move their troops rapidly throughout the theatre of operations and to remove the Taliban and Saddam Hussein with astonishing speed, few losses and acceptable levels of collateral damage. Although the Europeans were unable to follow the Americans, they proved more effective during the post-war stabilization and reconstruction period. British troops applied techniques of 'imperial policing.' During the colonial period they drew the conclusion that wining the hearts and minds of the local population and the isolation of insurgents from their base are key requirements for a small occupying force in a large country.

War Fighting

When it comes to conducting high-end military operations Europeans can learn a lot from the Americans. A short look at the 'New American Way of War' indicates both the U.S. implicit expectations and the magnitude of the project to create a European post-modern military. During operation Enduring Freedom innovative concepts and advanced technology solved some of the problems associated with unconventional warfare.[4] Washington won the war by committing Special Operation Forces (SOF) and precision strike. Moreover, the U.S. cleverly used local warlords to fight a proxy war, with U.S. SOF and air power. One of the most important lessons of operation Enduring Freedom, one that would have an impact on future doctrine, was the wholesale integration in air and on the ground and the application of a rudimentary form of Effect Based Operations (EBO) and

4 D. Chipman, "Air Power and the Battle for Mazar-e-Sharif," *Air Power History*, spring 2003, pp. 35–54. A. H. Cordesman, The *Lessons of Afghanistan: War fighting, Intelligence, Force Transformation, Counter proliferation, and Arms Control* (Washington, D.C.: CSIS, June 18, 2002), A. Davis, "How the Afghan War was Won," *Jane's Intelligence Review*, February 2002, pp. 6–13.

Network Centric Warfare (NCW).[5] The combination of SOF, precision-guided munitions and real time targeting proved an extremely effective force multiplier. Victory was achieved at acceptable costs for the U.S. with the expenditure of 38.000 sorties. Only 30 Americans lost their lives and in total no more than approximately 300–500 SOF were actually with their 'boots on the ground,' representing a relatively small political risk.

Compared to Afghanistan, Iraq provided an even better test ground for the new concepts. Secretary Rumsfeld put his trust on NCW with precision bombing, a small, fast moving ground attack force and heavy reliance on SOF and air power.[6]

On the one hand, the Iraqi military defended their country stunningly incompetent. Instructions emphasized commanders and troops to prepare for defensive operations that failed to take into account air and missile attacks. Moreover, the instructions called for jihad and martyrdom instead of effective resistance. Had Saddam Hussein defended his country more intelligently, he would have lost anyway. Due to the excellent performance and the overwhelming superiority of the coalition forces the war would have been won even without a good operations plan. On the other hand, the Americans confirmed that the combination of innovative concepts and power projection with high-tech forces for advanced expeditionary warfare were able to achieve objectives with astonishingly low numbers of friendly casualties and only modest collateral damage. Networking of forces contributed to the tempo, which is a fundamental principle contributing to the success of military operations. The combination of intensive air strikes with the highly mobile ground forces continued day and night and small, while fast moving forces defeated larger ones. Arthur Cebrowski, a retired vice admiral and director of the Pentagon's Office of Force Transformation, observed tighter integration between land and air operations. Indeed, Iraqi Freedom was a joint operation, integrating airpower and land operations. For the first time forces were integrated, rather than deconflicted. Logistical support was equally impressive. The United States not only managed to fight half way around the globe, they could move ammunition, fuel, and water to maneuver units deep into the theatre of operations. In addition, only the United States could sustain armored and mechanized forces during long maneuver movements. It is this new model of warfare that underlies the American ideas for force transformation towards a "postmodern armed force" and entails a process comparable with the implementation of the AirLand Battle doctrine during the 1980s.

The success gave credence to the concepts of EBO and NCW which lies at the heart of force transformation. NCW can be regarded as the natural

5 See for a concise analysis for instance Norman Friedman, *Terrorism, Afghanistan, and America's New Way of War* (Annapolis, MD: Naval Institute Press, 2003), in particular chapter 10.

6 See for detailed analyses of Iraqi Freedom for instance Williamson Murray and Robert Scales, *The Iraqi War, A Military History* (Cambridge, MA: Harvard University Press, 2003); Bob Woodward, *Plan of Attack* (New York: Simon and Schuster, 2004); and Anthony Cordesman, *The Iraq War, Strategy, Tactics, and Military Lessons,* CSIS (Westport, CT: Praeger, 2003).

culmination of a series of military technological and doctrinal innovations, a process that took off with operations Desert Storm. Several experts in the 1990s predicted the course U.S. armed forces would take: 'the U.S. is poised to harness key information technologies—micro electronics, data networking, and software programming—to create a networked force, using weapons capable of pin point accuracy, launched from all-seeing sensors, managed by intelligent command nodes. By distributing its forces, while still being able to concentrate fires, the U.S. is improving its mobility, speed, potency, and invulnerability to enemy attack.[7] Indeed, whereas the 1990s colored the European militaries by the Balkan peace keeping operations, for the U.S. military they marked the birth of the 'Revolution in Military Affairs' of which both Enduring Freedom and Iraqi Freedom are the most recent culminating points.

This involves a paradigm shift in the nature of the conduct of military operations. In NCW lies a fundamental shift in warfare, one from linear platform centric warfare to nonlinear network centric warfare applicable across the spectrum of combat operations.

Stabilization

When it comes to stabilization, the Americans can learn a lot from the Europeans. Regime change in Afghanistan and Iraq was achieved with great speed. Yet, winning the peace during the subsequent stabilization phase proved more difficult. As has been argued before, stabilization differs conceptually from war fighting. War fighting requires military forces to gain quick and decisive victories; stabilization is a political process to win the hearts and minds of the people with military force in support. In support of that political process stabilization requires a challenging mix of counterinsurgency operations or unconventional warfare and peace keeping and reconstruction efforts.

Stabilization forces are likely to be deployed in a potentially hostile environment and will have to deal with 'spoilers' or insurgents practicing asymmetrical techniques, such as guerrilla and terrorism. Spoilers could easily undermine peace keeping en reconstruction efforts. As a matter of fact, the outcome of the counterinsurgency operation will define the success of the entire stabilization effort. Historically, only the British and the Dutch were quite successful in combating insurgents in their colonies. With the loss of Indonesia in the 1950s the Dutch not only lost all experience, but also their mental preparedness for this kind of war. In drafting their new counterinsurgency manual, the Dutch army staff made use of the old manuals General Johannes van Heutz used during the 1920s and 1930s while combating insurgents and terrorists in what is now the Republic of Indonesia. Van Heutz reorganized his conventional ground forces for dealing with the insurgents. He created small units of a dozen

7 David Gompert, Richard Kugler, Martin Libicki, *Mind the Gap, Promoting a Transatlantic Revolution in Military Affairs*, INSS (Washington, D.C.: National Defence University Press, 1999), p. 4.

armed men, who were instructed to conduct search and destroy operations. This led to an episode the Dutch do not want to remember, because some counter-insurgency operations came very close to what is now considered as war crimes. As no distinction could be made between combatants and non-combatants entire villages were burned down, with the objective that the fighters would loose their basis. Secretary Rumsfeld acknowledges that direct attacks on fighters are useless, but that one must 'drain the swamp they live in' instead.[8]

In addition, the Dutch used the British counter-insurgency manual, which is still considered the most elaborate manual for this type of warfare. In contrast to the Dutch the British did not give op their skills, while at the same time maintaining the mental preparedness needed to carry out counter insurgency-operations. Their experience in Northern Ireland proved very useful for stabilization operations in Afghanistan and Iraq.

Three Sets of Forces

As a matter of fact today's challenges require three different concepts: conventional and unconventional war fighting and stabilization. Conventional and unconventional war might precede the stabilization phase. During that phase the stabilization forces might be confronted with unconventional operations of an irregular enemy. Historically, all three concepts require different sets of forces. In contrast to conventional warfare which is conducted by manned arms and standoff weaponry, unconventional war is waged by armed men. Technology plays a supporting role at best, i.e. for personal protection and communications. But in the final analysis, success depends on old fashioned fighting skills using small caliber arms or knives in search-and-destroy operations. Crucially, combating insurgents is a battle for the hearts and minds of the people, who usually lack basic needs such as food, health care and education. The limited and constrained use of force is a prerequisite for success. Winning the heart and minds of the population will deprive the insurgents of their base and contributes to the success of a counterinsurgency operation and consequently to stabilization.

As regards land forces, conventional warfare requires maneuver warfare with large combined arms formations, i.e. brigades and divisions. Unconventional warfare will be fought by Special Forces or Specialized Forces, e.g. air maneuver units. SOF will also be needed for counter-insurgency operations during the stabilization phase and as a back up for light infantry units. During the stabilization phase SOF operations, however, must be conducted in such a way that they will not undermine the political process. Finally, light Infantry, psyops units, reconstruction engineers, medical units and civil affairs units form the core of stabilization and reconstruction battalions or brigades.

8 *International Herald Tribune*, September 19, 2001, p. 6.

Experience with unconventional and conventional operations during operations Enduring Freedom and Iraqi Freedom demonstrated that it could be possible to conduct both kinds of combat operations with the same set of forces. Small, company and battalion sized units conducting a swarming type of warfare could indeed fight a regular and an irregular opponent at the same time.

The techniques of netcentric operations could enhance the efficacy of stabilization operations as well. Stabilization operations require the minimum use of force and 'social patrols.' Increased situational awareness and the ability to call in reinforcements rapidly will greatly enhance the military effectiveness of small units with limited combat power in a potentially hostile environment.

In case the intervention and the stabilization phase are to be carried out by the same forces, it is highly unlikely that the intervention force could make the mental shift from war fighting to stabilization. For example, this was demonstrated by the U.S. forces after the end of major combat operations in Iraq. Maintaining a war fighting posture, they were unable to win the hearts and the minds of the local populace.

Only the U.S. will be able to develop and sustain different sets of forces. Since most European countries lack the political will and/or the capabilities to deploy heavy-armored units, most of the traditional mechanized land forces could be restructured for unconventional warfare, stabilization and reconstruction. This requires a new balance between infantry, armor, combat support and combat service support. For force protection and fire support limited numbers of heavy armor—tanks and artillery—will be employed in a 'stand alone role.'

The core of Europe's war fighting capabilities should therefore be reaction forces, i.e. SOF and specialized, quickly deployable forces, including marines and air maneuver brigades. These forces will also form a back-up of deployed stabilization forces and will be employed in case of an escalating conflict. In addition, they could serve as early entry forces during a military intervention. This is a powerful argument for Europeans to further develop those capabilities. Another argument is that conventional wars are very rare; less than ten percent of all wars fought.

Specializing on unconventional warfare and stabilization would require a complete restructuring of European armed forces. It will however, result in usable forces that better match Europe's strategic culture, which emphasizes risk evasion and soft power.

To summarize, stabilization requires a mix of counter-insurgency operations, peace keeping and reconstruction. True, Europeans de facto specialize in stabilization, but they may have no other choice but to fight wars, if vital interests are threatened. Moreover, the line between stabilization operations and short high-intensity operations is often a very thin one and the benefits of NCW are most likely relevant not only in high-intensity operations but in a wide variety of other types as well.[9] Finally, the present

9 For this, see for instance David Gompert, Hans Pung, Kevin A. O'Brien, Jeffrey Peterson,

division of labor that de facto exists between Europe and the U.S., with the U.S. the sole provider of early entry forces for high-intensity operations is politically unsustainable.

The Challenge for Europe

Anyone familiar with military technological developments in various parts of the world and classified threat analyses will acknowledge that Western military forces will be increasingly facing an *anti-access* problem when they want to deploy to and operate safely in, over and from remote regions. At the same time it seems almost inevitable that the problems concerning interoperability with U.S. armed forces will only increase if European forces do not accelerate the process of military innovation.

Europe should also shorten the time lag between the deployment decision and the actual fielding of forces. Consequently, firm decisions are urgently required. For instance, it will still take another decade before NATO operates an Air Ground Surveillance system which proved its worth more than a decade ago during Desert Storm.

Contrary to popular opinion, the challenge is not of a financial nature but springs from the need for modernization and transformation while maintaining old force structures. It is true that for budgetary reasons very few European nations can maintain a broad tool box of capabilities required to act as a lead or framework nation. In addition, even the UK, France and Germany—the prime engines of European defense—see transformation plans frustrated by the need to return on intentions to increase the defense budget or by the increasing costs of ongoing stability operations.[10] Yet, in 2001 it was concluded that the Defense Capabilities Initiative (DCI) would cost approximately 43 billion Euros to acquire those capabilities that offer Europe the required expeditionary capabilities, which, on the staggeringly high annual collective defense expenditure of 180 billion, amount to no more than a manageable annual increase of about 4 billion Euro in investments.[11] However, unless restructuring takes place, the DCI would entail an increase of almost 10% on the actual available investment budget due to the high percentage of defense budgets that needs to be allocated on personnel and In Place Forces.

This ties in with the second problem; the dynamics of military innovation. Full-scale transformation will redefine how military power is generated and therefore requires a joint approach and willingness by all armed services. It will however also have significant consequences for force structures and subsequently for budget allocation among the armed

Stretching the Network, Using Transformed Forces in Demanding Contingencies Other Than War (Santa Monica, CA: RAND, April 2004).

10 Pierre Tran, "Budget Decision Looms for French President"; and Martin Agüera, "Defense Reform Still Uncertain for Berlin," *Defense News,* June 21, 2004.

11 Kees Homan, Bert Kreemers, Frans Osinga, *De Militaire Staat van de Europese Unie* (The Hague, May 2001, Clingendael Research Paper). For similar estimates see also: EU Institute for Security Studies, *European Defence. A Proposal for a White Paper*, Paris 2004, p. 118.

services. From an historical perspective such radical joint innovations and doctrinal changes are rare. They may occur if the following conditions exist in ministries of defense and the armed forces: open debate; deliberate and focused research, a critical, open and failure tolerant culture; an emphasis on experimentation; an explicit institutional interest and vision in developing a new model of warfare; no doctrinal rigidity nor institutional biases or preferences concerning feedback that contradicts doctrine; existing plans; and force structures. Fundamental joint restructuring will rarely be sponsored by one of the armed services or even combined, in particular if the input for change is not derived from own experience but from the lessons learned by other military organizations.[12] A brief look at the process underlying innovation during the 1990s in most European armed forces warrants the conclusion that a prime challenge lies in changing existing innovation processes and in maintaining strong political commitment to transformation.

To introduce a new concept in Europe, during NATO's 2002 Prague Summit the Americans proposed the NATO Response Force (NRF). It is supposed to become a European test bed for new concepts, meant to spearhead force transformation. In political and institutional terms however, NRF is both an acceptance of the failure of the improvement initiatives mentioned above as well as a final attempt to get the European defense organizations moving in the direction of the developments that have occurred in the U.S. armed forces. In the eyes of the U.S., the NRF is indeed not only about the creation of a small reaction force, but also about creating the catalyst for the development for, and the adoption of a new model of warfare along the lines of the U.S. transformation program, which opens the prospect for creating post-modern armed forces. It is only stretching reality a bit to state that according to the U.S. the future military relevance of NATO depends on its ability to contribute to a credible and military meaningful way in operations in the high end of the spectrum of violence alongside U.S. forces. With the NRF the European members states have, in fact accepted the U.S. agenda.

While acknowledging the need for military improvements, the key question is whether Europe can and should follow the American transformation agenda in toto. Probably not, as most likely European forces will find themselves unable to match the pace of U.S. military developments. Rather, Europe should strive for technical cooperability with the U.S., and doctrinal convergence among European armed forces. A multi speed Europe is emerging with a small group of countries in possession of advanced post-modern forces and a large group of countries which contribute with niche capabilities and stabilization forces.

12 For the subject of military innovation, see for instance Willianson Murray and Allan Millet, *Military Innovation in the Interwar Period* (Cambridge: Cambridge University Press, 1996); Deborah Avant, *Political Institutions and MilitaryChange* (Ithaca, NY, 1994); Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, NY, 1991); Barry Posen, *The Sources of Military Doctrine: France Britain, and Germany between the World Wars* (Ithaca, NY, 1984).

In the short term Europe should aim for Network *Enabled* Operations (NEO), rather than Network *Centric* Warfare. NEO requires units to plug in with their C4ISR assets, while actual operations will be conducted according to national doctrine. Member states should develop the ability to operate in such a network, and NATO and the EU combined should lay out the architecture for such a structure. This would enable European military units to operate within an EU context and to maintain interoperability in a U.S.-led operation. This holds especially true for land forces, given that navies and air forces already have a high degree of interoperability. In fact, this is the path actually being taken by the UK and under the rubric Net Enabled Capabilities deliberated upon within NATO's Allied Command Transformation.

In January 2003 the EU's Military Staff agreed on the EU Military Response Concept. This concept would provide the conceptual basis for the conduct of EU-led crisis management operations. In December 2003 the General Affairs Council concluded that the EU rapid response capability should aim at complementing the 1999 Headline Goal with a precise definition and subsequent identification of and modalities for EU rapid response elements. A 'food for thought paper' issued by the United Kingdom, France and Germany titled 'The Battle Groups Concept' was tabled in March 2004. It proposed an inventory of 7–9 Battle Groups and elaborated on an earlier proposal by the Franco–British summit of 24 November 2003. At this summit its was proposed to shape up the EU's rapid reaction capabilities for autonomous operations; creating several highly deployable joint and combined task forces or *Battle Groups* of roughly 1,500 troops.[13] A Battle Group is defined as the minimal force package being military effective, credible, coherent and capable of stand-alone operations, or of the conduct of the initial phase of larger operations. The Battle Group is based on a combined arms, battalion-sized package, including combat support, and combat service support, as well as air and naval capabilities. Such a battle group should be ready in the area of operations in 15 days and sustainable for 30 days of initial operations. If needed, the Battle Group should be extendable to 120 days. The Battle Groups were developed with Africa in mind. Indeed, the successful conclusion of Operation Artemis in Bunia, Congo (May–June 2003) contributed to shaping up the proposal. Battle Groups will be deployed under a framework nation concept, and could be considered as a modest step to create a European element for a network of external action.

Conclusion

Europe must create a post-modern force as a credible instrument of its foreign, security and defense strategy, one that allows for high intensity operations with few friendly losses and acceptable levels of collateral damage. Such a force better matches the political culture of a post-modern

13 Declaration Franco–British Summit, London, November 24, 2003.

system than the collection of modern forces that is currently available to the EU and NATO. Europe could specialize in unconventional warfare and stabilization operations. Stabilization often requires unconventional warfare against 'spoilers.' Counterinsurgency units could be used as early entry forces during interventions as well. Both the NRF and the Battle Groups contribute to improved war-fighting capabilities. It is however, undesirable to train and equip these forces solely for conventional warfare. As a matter of fact, unconventional warfare should be the focus. As a next step the Europeans should restructure their large in place, mechanized forces for stabilization and reconstruction.

Due to the developments mentioned in this paper Europe is in urgent need of a European doctrine, and an European military approach to operations for, despite a NATO first approach and the NRF, developments in the transatlantic relationship and within the EU point to the increasing chance that in some cases the U.S. will not lead nor contribute with vital support assets.

Capabilities-based Planning – A Transformational Approach?

*E. Anders Eriksson**

What is the relationship between transformation and business? Most would agree that this is highly dependent on what kind of transformation we have in mind. At the conference on Diverging Perspectives on Transformation at Carlisle Barracks the emphasis was on *security* transformation rather than *military* transformation in a narrow sense, focusing on stabilization and reconstruction rather than on high intensity war-fighting, stressing the ability for opponents to deploy asymmetric strategies, and thus questioning the net-centric gospel as it has been preached over the past decade. These insights are not necessarily shared by those addressing transformation from the business and materiel side, though. In this brief paper I shall critique two interlinked ideas often heard in these communities:

- to use more formalized methodologies to provide answers on tactics and equipment for war-fighting and
- to outsource capability development to industry.

Capabilities-Based Planning

The current thinking on *Capabilities-Based Planning* (CBP) is a useful perspective from which to critically analyze these thoughts. In a NATO publication, the Handbook on Long Term Defence Planning, CBP is defined as follows:

"This method involves a functional analysis of expected future operations. The future operations themselves do not enter the performance evaluations. The outcome of such planning is not concrete weapons systems and manning levels, but a description of the tasks force structure units should be able to perform expressed in capability terms. Once the capability inventory is defined, the most cost-effective and efficient physical force unit options to implement these capabilities are derived. However, the evaluation of physical force unit options is not a part of the LTDPP [Long Term Defence Planning Process]."[1]

This may sound like a rather unfriendly attempt to define CBP: as being concrete neither with regard to tasks nor force elements, and true enough the Handbook does not recommend it. However, proponents of CBP are also prepared to use at least the latter part of this definition.[2]

The point where the definition has a clearly negative bias—at least if measured against the best proponents of CBP—is really the second sen-

* FOI (Swedish Defence Research Agency) Defence Analysis.

1 RTO/NATO SAS-025 Handbook on Long Term Defence Planning. RTO-TR-069, 2003.

2 Dr Douglas Hales, "Guide to Capability-Based Planning," NATO RTO SAS-055.

tence. What serious CBP analysts try to do is not to get rid of future operations altogether, but to go beyond what they perceive as the arbitrariness of specific, so called point scenarios. Instead, what these analysts set out to do is to analyze *all* possible scenarios in a so-called *scenario space* to derive well-founded capabilities requirements covering the entire scope of possible future missions (in a setting of computer-based modeling and simulation).[3]

Performance Contracting for Military Capabilities – and Its Problems for Smaller Countries

If the above program were realized, i.e. the quote with the second sentence replaced by something on all feasible scenarios being considered,[4] such CBP would in principle enable an outsourcing approach to capability development and acquisition: government decides what capabilities it needs, industry provides them in the form of the most cost-effective and efficient portfolio of assets. And note that for this approach to work, the portfolio cannot be seen as consisting of physical equipment alone. To realize military capabilities, equipment must work in concert with things such as concepts of operation and training of personnel.[5] Therefore, at least to some degree, such assets must also be included in the performance contract scheme.

There are already defense-related contracts made according to this approach, a forerunner being the U.S. Coast Guard's $17 billion, 20 year Integrated Deepwater System program for which a contract was awarded in 2002 to a joint venture between Lockheed Martin and Northrop Grumman.[6]

Undoubtedly performance contracting is an excellent innovation so long as there are indisputable performance metrics. While maritime border control may be a sufficiently self-contained and transparent activity for such contracting schemes to be sustainable with today's planning tools, few claim that this has yet been achieved for military operations across the board.

In fact, the feasibility of the American CPB approach to defense planning in general, and hence *a fortiori* the outsourcing approach to military capability can be questioned. The usefulness of the outsourcing approach is questionable—at least for countries other than the U.S., and possibly a

3 Paul K. Davis, "Uncertainty-Sensitive Planning," in Stuart E. Johnson et al. (eds.), *New Challenges, New Tools for Defense Decisionmaking* (Santa Monica, CA: RAND, 2003); Hales *op. cit.*

4 It should be noted that CBP has been long in the making, yet with little tangible results, e.g., for such a crucial issue as costing. See Hales *op. cit.*; Davis *op. cit.*; and Maj J. Jones & Maj K. Jeffrey (USAF), "Linking Capabilities to Cost in Support of DoD Capabilities Based Planning and Programming," NATO RTO SAS-055.

5 For example, the UK list of Lines of Development includes Concepts & Doctrine, Personnel, Equipment & Technology, Structures & Estates, Sustainability, and Training (Smart Acquisition Handbook, www.ams.mod.uk/ams/content/handbook/12.htm [downloaded May 8, 2005]).

6 www.uscg.mil/deepwater/ (downloaded May 8, 2005).

few others—also on other grounds. Let me turn to the CPB approach in general first.

An underlying assumption of the U.S. CBP approach is the notion that while the *intent* of potential adversaries across the globe may change rather abruptly—and hence the set of *politically* relevant scenarios, their military *capabilities*—and hence the set of *militarily* feasible scenarios—will evolve in a much more continuous fashion. Combined with the political position that the U.S. should be able to militarily overpower any potential opponent, this may provide the strategic business niche for sufficiently long-term contracts for capability development with industrial suppliers.

For a smaller country this may make sense for certain very well-defined, self-contained capabilities—perhaps maritime border control as described above. But when considering across-the-board military capabilities it makes little sense to suggest that it is in the national interest of a country with, say, Sweden's slim defense budget to make such long-term commitments. Especially in emergency situations, a small nation must be prepared to substitute, improvise and take risks in ways that can hardly be foreseen in the context of a business contract. And even in fair weather—in fact not least when the weather gets fairer, as Sweden has experienced since the end of the cold war—the desired portfolio of capabilities may shift dramatically and make even not-so-old procurement commitments utterly obsolete.

To end this section with some business strategy jargon: no organization should outsource its core competencies. A defense organization with such an immense inventory of capabilities, formations, and equipment as the U.S. DoD could conceivably elect to define just the meta level of capability management as part of its core business, while outsourcing much of the actual capability development work. A country of Sweden's size, in order to remain, shall we say, a competent third rate military power, needs to be able to have tighter control over the relationship between, on the one hand, its few available types of equipment and formations, and, on the other, the military capabilities possible to squeeze out of that inventory. This in no way excludes altogether that outsourcing based on performance contracts may be a useful approach for the defense organization of a smaller nation. It should, however, be applied further down the value chain than the levels here considered.

Unfortunately, the fact that there are compelling arguments against the capability outsourcing approach for smaller countries in no way excludes that this may be attempted.

The (In)Feasibility of Highly Formalized Approaches to Defense Planning

CBP also has more far-reaching conceptual problems. These, in essence, have to do with what epistemology to apply to the domain of human conflict. The underlying assumption of CBP is that the main answer is something like the physical and computing sciences. While this is obviously

true for many domains of warfare, like air defense to take but one example, it misses the more fundamental levels of conflict as a social, cultural, political—i.e. deeply human—category.

In the Cold War setting, at least in the so meticulously planned for but fortunately never executed great European war, the interaction between the socio-political and the military-technical levels was so simple that warfare as a form of engineering based on the exact sciences was perhaps a reasonable simplification. But then of course the real warfare in the Cold War was mainly economic and cultural.

I suppose that some CBP-ers are now hard at work incorporating the lessons from Iraq, in whatever form, into their models. But this is not likely to be the final word on the nature of human conflict in general—and the next conflict in particular.[7] What if, for example, nuclear counter-proliferation were to turn into the *really* pressing issue with competent, clandestine (more or less) non-state bomb programms popping up in many spots across the globe? Applying the time- and resource-consuming Iraq model of regime change *cum* stabilization and reconstruction, even supposing it will work out in the end, would hardly be a sufficiently cost-effective approach in such a situation, truly threatening human civilization as such.

Therefore I strongly adhere to a defense planning approach extending that in the above-mentioned NATO publication, i.e. scenario-based planning employing a portfolio of scenarios, which originate from exploratory exercises explicitly designed to 'stretch' the domain of conflicts perceived to be feasible. For some such scenarios, elaboration—as advocated by CBP adherents—of modeling support to analyze force requirements for whole scenario spaces rather than just somewhat arbitrary point scenarios may be in place. It is more important, however, to consider a sufficiently wide scope of qualitatively different point scenarios, and to understand the socio-political dimensions of each such conflict and, hence, how military means may need to be employed in close concert with means from the political, diplomatic and humanitarian spheres. That is, according to what could be termed an effects-based approach.[8]

While, as suggested above, such a more 'soft' approach to analyzing potential conflict situations can usefully be supplemented by more quantitative analyses, in particular for scenarios that (may) involve considerable elements of high intensity war-fighting, it is important to do the 'softer' analyses first and let them set the scene for, when appropriate, the more quantitative analyses.

The approach to planning outlined above comes from the long-term side. However, in the post cold war world one cannot take for granted that

7 Cf. Col. Peter R. Mansoor (USA), "Transformation Reconsidered – The Iraq Experience," below, pp. 20.

8 RTO/NATO SAS-025 *op. cit.*; Dr E. A. Eriksson "Defence Planning in Transformation?," NATO RTO SAS-055. For Effects Based Operations, see in particular Edward A. Smith, *Effects Based Operations: Applying Network-centric Warfare in Peace, Crisis, and War* (Department of Defense Command and Control Research Program, 2002).

strategic defense planning is always long term. That is, as we have learned, big, structural changes come with short notice. I suggest that the outlined methodology is not confined to the traditional long term.

Returning to the business perspective, major security challenges on short notice very much require an ability to innovate. While this must be to a considerable degree inherent in armed forces and other government agencies, it is also important to use the innovative potential in the private sector. While some such ability is to be found in the primes who could be potential capability contractors, innovative small and medium-sized enterprises (SMEs) should certainly not be neglected in this context. While some suggest that the primes should act as intermediaries between government customers and innovative SMEs, I in contrast suggest that it is vital for government to have direct access. Not, of course, to SMEs that supply hopefully innovative solutions to 'piping and wiring' problems—vitally underpinning but far removed from the actual military capabilities. But indeed for SMEs with a potential to help in conceptual innovation, perhaps extending the capability of legacy systems beyond their intended use for high intensity war-fighting by minor add-ons in terms of sensors, graded effect munitions etc.[9]

9 Mattias Axelson and E. Anders Eriksson "Towards an Industry for Network Based Defence? Creating Information Age defence Systems," FOI-R–0490–SE (Scientific report), 2002.

Leveraging Boeing Net Ready Technologies to Accelerate Army Transformation

*Thomas A. DuBois and Michael E. Harris**

Abstract

Boeing has identified opportunities to transition net ready technologies from emerging transformation programs, such as Future Combat Systems (FCS) and the Joint Tactical Radio System (JTRS), to current Army programs. As the Department of Defense vision for network centric operations matures, the priority to integrate net ready technologies increases. Boeing is proactively addressing this new capability through the horizontal integration of FCS and JTRS technologies to current platforms, with supplemental investment of independent research and development funds and company capital.

The Net Ready—Key Performance Parameter (NR-KPP) is a requirement for new programs and upgrades to existing programs. For example, the Army's new Attack Reconnaissance Helicopter (ARH) program has the NR-KPP as a requirement. Details for this requirement are described in the Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6212.01C. This document describes four major elements that need to be addressed for conformance: (1) Information Assurance; (2) Compliance with the Network Centric Operations and Warfare Reference Model (NCOW-RM); (3) Compliance with Global Information Grid (GIG) Key Interface Profiles (KIPs); and (4) Supporting Integrated Architecture Products.

(1) Information Assurance

Information assurance requirements are specified by DoD instructions 8500.1 and 8500.2, which describe the DoD Information Technology Security Certification and Accreditation Process (DITSCAP) as shown in Figure 1.

The Software Communications Architecture (SCA) design of JTRS facilitates the DITSCAP for those platforms hosting JTRS. SCA accommodates red-black data separation and has data and control layers to meet other information assurance requirements identified in 8500.1 and 8500.2. The JTRS SCA is shown in Figure 2 (p. 54).

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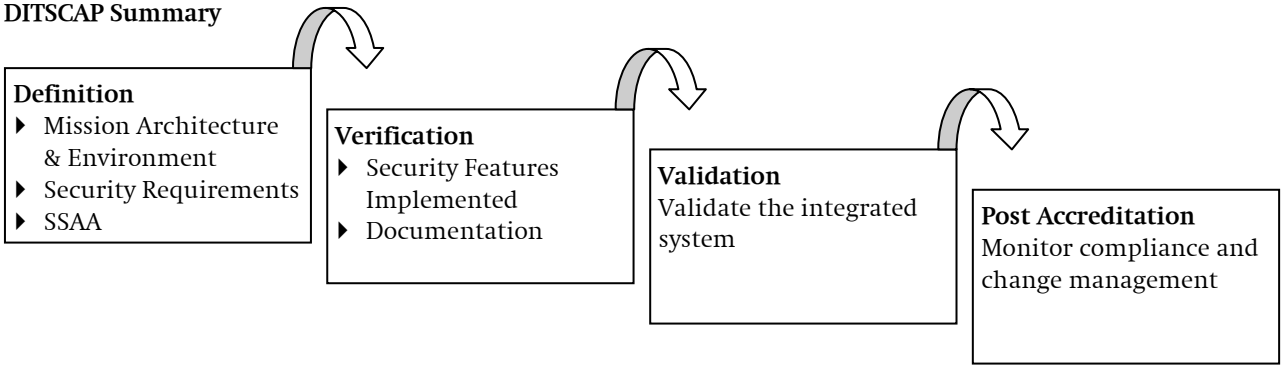
Figure 1
DITSCAP Summary



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The Apache and Chinook programs have plans to integrate JTRS within the next three to five years.

Other information assurance requirements that are internal to the platform are addressed by hardware and software avionics architectures that support partitioning and multiple levels of security. Partitioning is described in DO-178B and ARINC 653. Modern real-time operating systems have features that support DO-178B certification and multiple levels of security. Boeing has development efforts under way to re-architect current operational flight software to structures that can be hosted by these new operating systems.

(2) Compliance with the NCOW-RM

Compliance with the NCOW-RM is the most challenging element of the NR-KPP. As part of the Future Combat System (FCS) program, Boeing is developing a set of middleware services, known as the System Of Systems Common Operating Environment (SOSCOE), which will address those services identified in the NCOW-RM. The NCOW-RM is a taxonomy of functional services required to communicate with the Global Information Grid. At a top level, this taxonomy is shown in Figure 3 (p. 55).

Each of these branches expands up to five additional levels of service functionality. Boeing is developing SOSCOE as an integrated set of commercially procured, contractor-developed, and in-house developed middleware service products. These products are organized into a set of fifteen service families as shown in Figure 4 (p. 55).

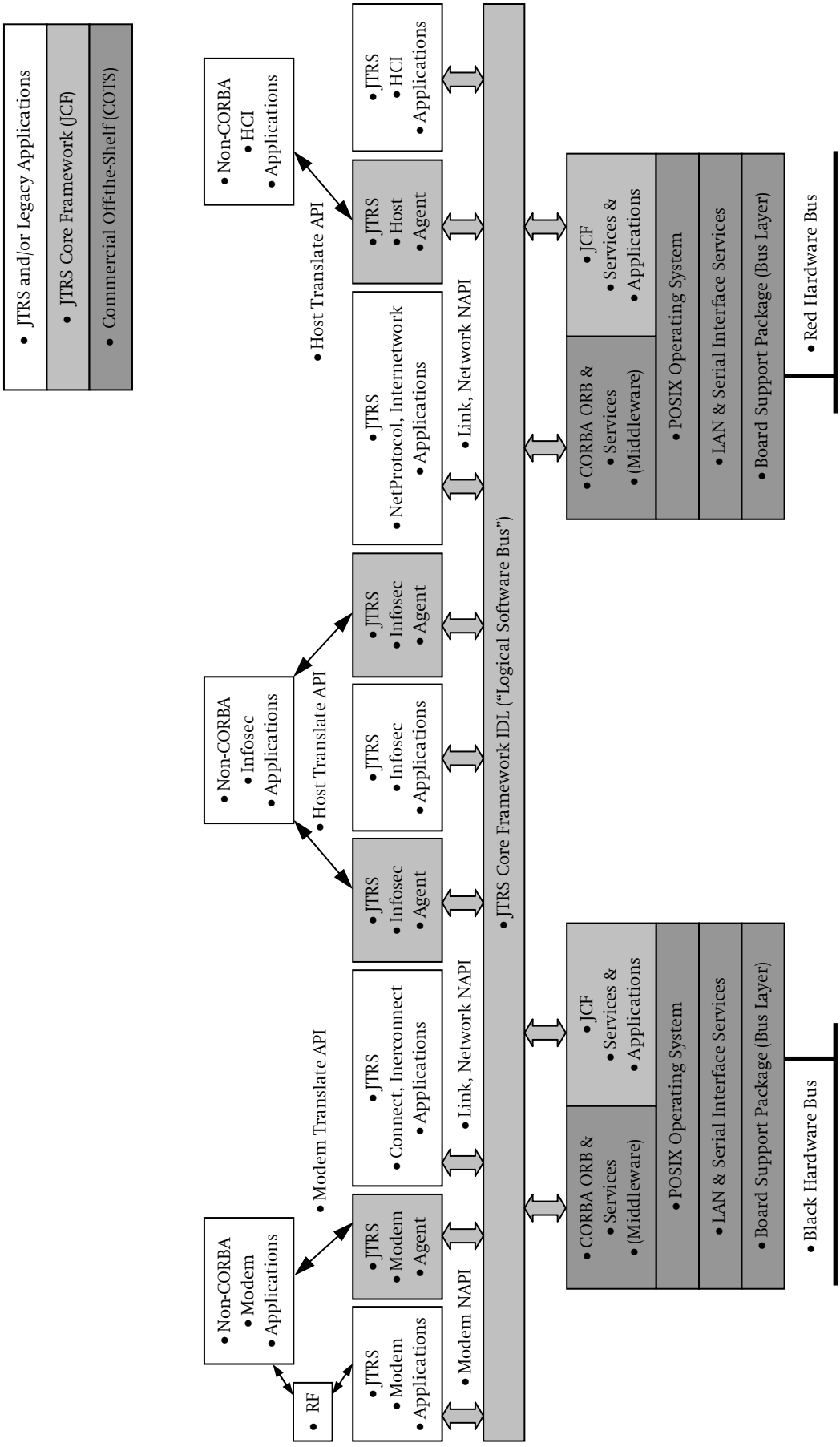


Figure 2
JTRS Software Communications Architecture (SCA)

Figure 3
NCOW-RM Service Taxonomy

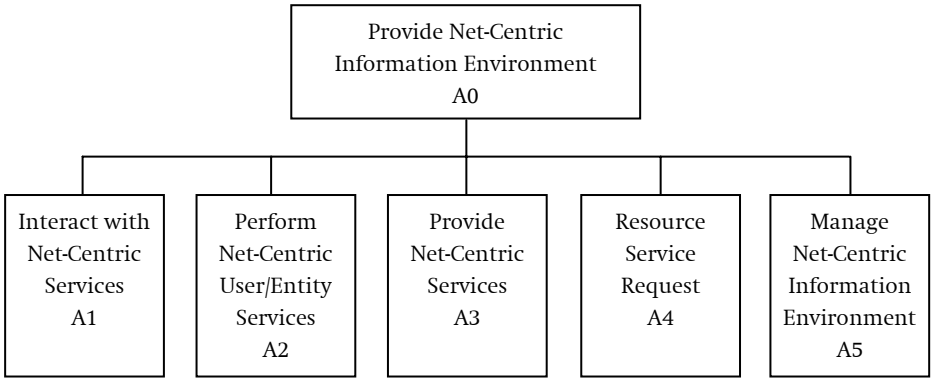
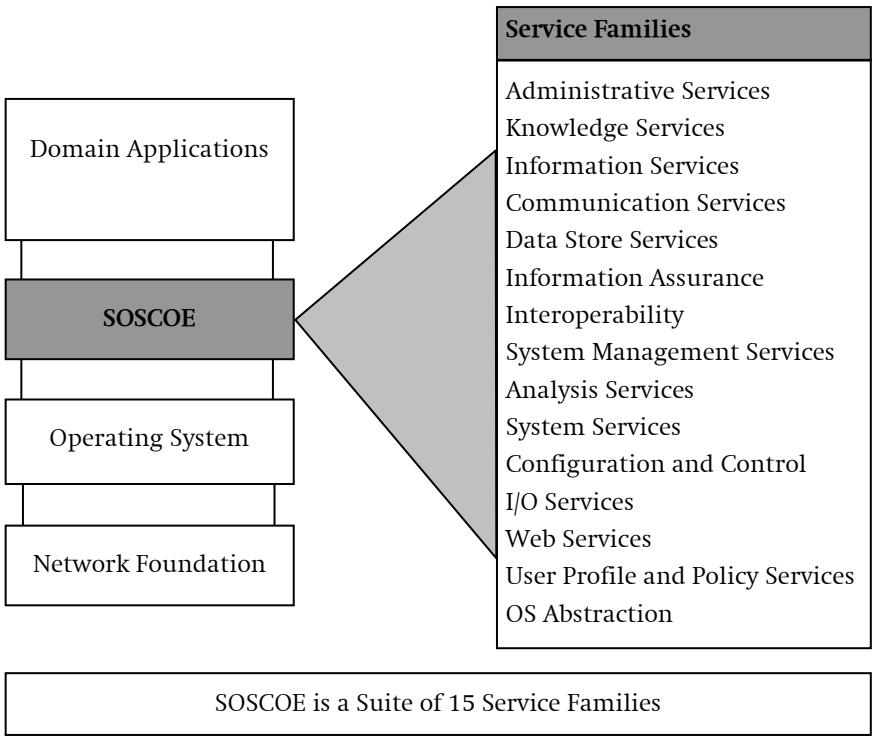


Figure 4
System Of Systems Common Operating Environment (SOSCOE)



Boeing has mapped SOSCOE service family functionality to NCOW-RM services. A subset of this mapping is shown in Figure 5 (p. 56).

Figure 5
Subset of Mapping between NCOW-RM and SOSCOE

A0 – Provide Net-Centric Information Environment	
A1– Interact with Net-Centric Services	
A11 – Request Access to the Information Environment	Administrative
A12 – Request Services/Functional Capabilities	Collaboration, Information Assurance
A13 – Create/Maintain User/Entity Profile	
A14 – Provide Info/Objects to the Information Environment	Communication, Interoperability, I/O
A15 – Get Information/Objects	Communication, Interoperability, I/O
A16 – Request Collaboration Services	Collaboration
A2 – Perform Net-Centric User/Entity Services	
A21 – Evaluate/Ingest Inputs	Knowledge
A22 –Assist User/Entity	Analysis
A23 – Invoke Net-Centric Capabilities/Services	Communication
A3 – Provide Net-Centric Enterprise Services	
A31 – Provide Core Services	
A311 – Provide Discovery Services	Communication
A312 – Provide Collaboration Services	Collaboration
A313 – Provide Messaging Services	Interoperability
A314 – Perform Information Mediation Services	Analysis
A315 – Perform Information Storage Services	Data Store

SOSCOE implements all software-based NCOW-RM services and provides additional capabilities as well. One additional capability is provided by the Operating System (OS) Abstraction service family. This set of services provides operating system independence for both middleware and platform applications. When fully implemented, OS Abstraction will eliminate the need to change application software as a result of either changing or upgrading the operating system.

Another useful capability supporting transformation is contained in the SOSCOE Interoperability service family. This service family contains a set of tools that isolate the software developer from needing to know the specific messaging format required for communication with different off-board systems. For example, if a software developer needs to write an application that provides communication between aviation and ground units, that developer would not need to include artifacts of the Variable Messaging Format (VMF) standard in the software application. SOSCOE Interoperability services will take care of the messaging format whether it is VMF, TADIL-J, XML, or anything else.

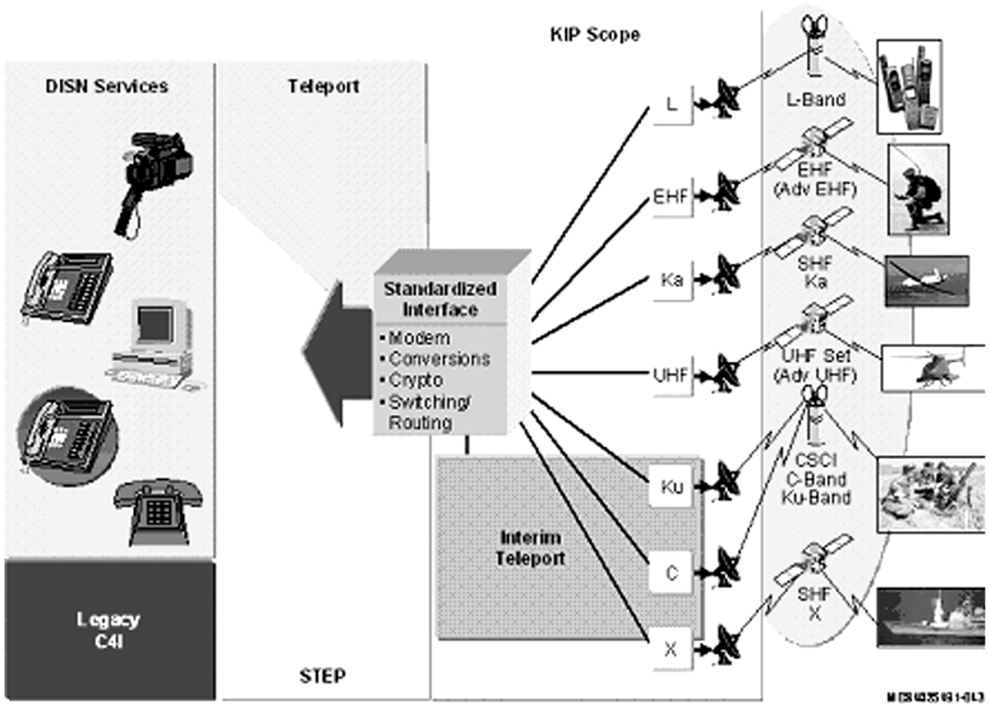
Boeing has plans to insert subsets of SOSCOE on existing platforms with linkage between program insertion opportunities and the SOSCOE development schedule. Boeing has also recognized the urgency of providing GIG capabilities to existing platforms and is targeting SOSCOE Build 2.0 for use on aviation platforms, which is scheduled for release in the fourth quarter of 2007. In advance of this release, Boeing is performing technical risk reduction by using intermediate versions of SOSCOE in laboratory environments intermingled with current operational flight programs. These laboratory experiments will test capabilities and real-time performance leading to a phased implementation of SOSCOE based on prioritized plat-

form requirements. An emerging strategy is to integrate relevant subsets of SOSCOE timed with an upgrade to the mission computing hardware. Upgraded hardware is needed to support the additional throughput, memory, and latency requirements for hosting SOSCOE.

(3) Compliance with Global Information Grid (GIG) Key Interface Profiles (KIPs)

Of the four major NR-KPP elements, compliance with the GIG KIPs is currently the least mature. To date, the only KIP defined well enough to implement is the SATCOM Teleport GIG KIP. The Teleport System is a key component that supports combatant commanders with extended multiband satellite communication capability and seamless access to terrestrial components of the Defense Information Systems Network (DISN) for worldwide operations. The current aviation approach for interfacing with the Teleport System is to use an existing UHF SATCOM DAMA connection to a satellite with downlink to ground-based teleport receivers. Other interfaces are possible as shown in Figure 6.

Figure 6
SATCOM Teleport GIG KIP Implementations



As the DoD further defines the other GIG KIPs, we expect these requirements to flow into designs for radio systems, such as JTRS and the Family of Advanced Beyond-line-of-sight Terminals (FAB-T). By integrating these systems on current platforms, the infrastructure will be in place to more easily address other GIG KIPs as they are defined.

(4) Supporting Integrated Architecture Products

The development of supporting integrated architecture products links platform operational requirements with needed net ready capabilities. These products define the operational system architecture, information exchanges, and communication requirements that a platform needs to be effective in a network-centric environment. The Department of Defense Architecture Framework (DoDAF) process describes how these products are constructed and maintained. For the most part, service users of the platforms take responsibility for building these products. The products are organized as a set of architecture views—All Views (AV), Operational Views (OV), System Views (SV), and Technical Views (TV). Boeing has learned that it is best to coordinate with the customer in the development of these products to prepare for these requirements as they are defined for the specific platforms. Figure 7 lists the minimum set of integrated architecture products as required by the NR-KPP.

Though the NR-KPP only lists nine required integrated architecture products, following the DoDAF process requires the creation of additional products. Figure 8 (p. 60) is a dependency diagram showing the suggested sequence for developing a complete set of DoDAF products.[1]

Boeing has ongoing efforts with customers to coordinate the development and creation of DoDAF architecture products. The closest teaming for this development is on the FCS program. Approximately two dozen different types of systems comprise an Army Unit of Action. Architecture products are in development for each of these systems.

Architecture development and maintenance are linked to system acquisition and upgrades. These views are dynamic and need to evolve as the GIG evolves. Changes can be in the form of new tactics, techniques, or procedures, or they could lead to new system capabilities. As a large-scale systems integrator Boeing is interested in both forms of performance improvement. The DoDAF Deskbook provides an excellent summary of the relationship between architecture life cycle and the acquisition process:

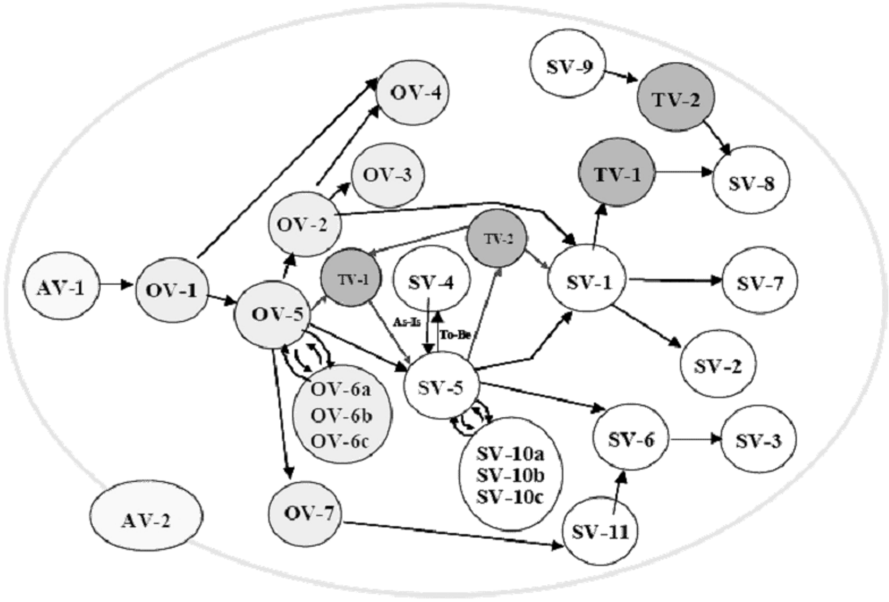
"In this illustration, the Operational View is used to drive the requirements that are evaluated against the Systems View. Operational deficiencies are derived from the analysis, and viable candidates are identified. These candidates can take the form of either materiel or non- materiel solutions and are modeled back into the Operational and Systems Views of the architecture. The architecture is re-analyzed, and the process continues until the operational deficiencies are minimized. The final sets of viable candidates are assessed for operational viability. Based on the results of the assessments, design changes are made and submitted for inclusion into the budgeting process. This process of developing, analyzing, and modifying continues throughout the architecture's life cycle." [DoDAF Deskbook, P. 2-12]

1 For more details on each of the views contained in Figure 8 (p. 60), the reader is referred to Department of Defense Architecture Framework Version 1.0 Deskbook (dated 2/9/2004).

Figure 7
Minimum Set of Integrated Architecture Products

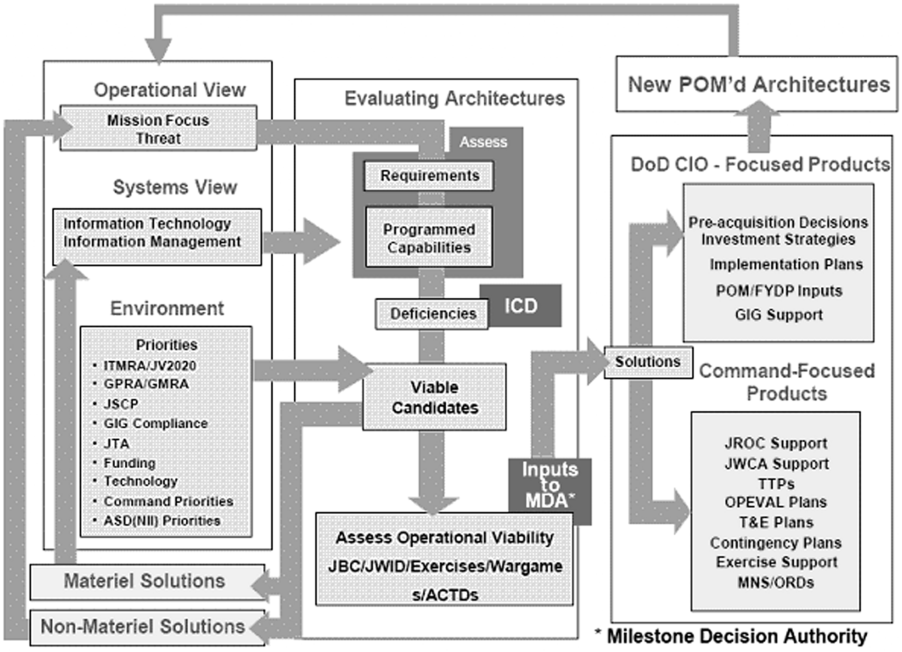
Product Label	*Product Name*	*General Description*
AV-1	Overview and Summary Information	Scope, purpose, intended users, environment depicted, analytical findings
OV-2	Operational Node Connectivity Description	Operational Nodes, operational activities performed at each node, connectivity and information exchange need lines between nodes
OV-4	Organizational Relationships Chart	Organizational, role, or other relationships among organizations
OV-5	Operational Activity Model	Operational activities, relationships among activities, inputs and outputs. Overlays can show cost performing nodes, or other pertinent information
OV-6c	Operational Event-Trace Description	One of three products used to describe operational activity sequence and timing – traces actions in a scenario or sequence of events and specifies timing of events
SV-4	Systems Functionality Description	Functions performed by systems and the information flow among system functions, including information assurance functions
SV-5	Operational Activity to Systems Function Traceability Matrix	Mapping of systems back to operational capabilities or of system functions back to operational activities
SV-6	System Data Exchange Matrix	Provides details of systems data being exchanged between systems
TV-1	Technical Standards Profile	Extraction of standards that apply to the given architecture, including information assurance functions

Figure 8
Dependency of DoDAF Products



In the previous DoDAF reference, the illustration is shown as Figure 9.

Figure 9
Architecture Life Cycle



Boeing Investment in Network Centric Operations

Boeing has spent over $500 million dollars of investment and capital to improve competency in network-centric operations and technologies. The company's "Phantom Works" research division has an entire technology thrust dedicated to network-centric operations with developments that will benefit all operating divisions. The Integrated Defense Systems business unit has an initiative in strategic architecture to support new business opportunities and coordinate division-wide analysis, modeling, and simulation efforts. Major capital improvements have been made across numerous sites for the purpose of conducting enterprise-wide experiments of network-centric operations using live, virtual, and constructive simulations of Boeing and other DoD products. Multiple Boeing simulation facilities across the country are linked together using LabNet. to conduct real-time simulations of network-centric operations.

Summary

Army transformation is a mandate, and net ready technologies will enable transformation. Through JTRS and FCS, the Army is leading all of the services in the integration of net ready technologies. Boeing has a strategic initiative in network-centric operations and is driving the integration of net ready technologies into Boeing products. Boeing is a co-founder of the Network Centric Operations Industry Consortium, and will use this venue as a means of sharing useful results for the benefit of all Army and DoD systems regardless of the developer. The DoD vision for the Global Information Grid is evolving and Boeing resources are dedicated towards addressing this transformation. The Net Ready Key Performance Parameter is an emerging customer requirement, and Boeing has development plans in place to ensure that existing platforms stay relevant in a network-centric environment.

Abbreviations

ARH	Attack Reconnaissance Helicopter
CA	Civil Affairs
CBP	Capabilities-Based Planning
CFLCC	Combined Force Land Component Command
CIMIC	Civil-Military Cooperation
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
C-MAC	Civil-Military Action Cell
CNN	Cable News Network
DCI	Defense Capabilities Initiative
DII	Defence Information Infrastructure
DISN	Defense Information Systems Network
DoD	Department of Defense
DoDAF	Department of Defense Architecture Framework
EBA	Effects Based Approach
EBO	Effects Based Operations
ENG	Engineer
FAB-T	Family of Advanced Beyond-line-of-sight Terminals
FCS	Future Combat Systems
FRES	Future Rapid Effect System
GIG	Global Information Grid
GMF	German Marshall Fund of The United States
HMMWV	High Mobility Multi Purpose Wheeled Vehicle
JCOM	Joint Command
JDAM	Joint Direct Attack Munition
JTRS	Joint Tactical Radio System
KIP	Key Interface Profile
LTDPP	Long Term Defence Planning Process
MEF	Marine Expeditionary Force
MOD	Ministry of Defence
MP	Military Police
NATO	North Atlantic Treaty Organization
NCOW-RM	Network Centric Operations and Warfare Reference Model
NCW	Network Centric Warfare
NEC	Network Enabled Capability
NEO	Network Enabled Operations
NRF	NATO Response Force
NR-KPP	Net Ready–Key Performance Parameter
OS	Operating System
OV	Operational Views
PSYOPS	Psychological Operations
RMA	Revolution in Military Affairs
RUSI	Royal United Services Institute for Defence Studies
SASO	Stability and Support Operations
SDR	Strategic Defence Review
SME	Small and Medium-sized Enterprises
SOF	Special Operation Forces
SOSCOE	System Of Systems Common Operating Environment
S&R	Stabilization and Reconstruction
SSI	Strategic Studies Institute
TSA	Training and Security Assistance
VMF	Variable Messaging Format