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## The Role of Command in Network Centric Warfare

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### Abstract

This paper is based on the current development of a new Joint Command Doctrine for the Swedish Armed Forces. The aim of the paper is to contribute to the conceptual framework of command theory and to provide a possible interpretation of the role of command in “Network Centric Warfare”. Moreover, the implications for multinational operations are discussed.

The starting point is the new force and command structure of the Swedish Armed Forces, induced by the changes in modern warfare and the Swedish security policy. Based on the supposed revolution in military affairs, the implementation of the new structure entails consequences for command. In a draft for *Joint Guidelines for Command* (JGC – *Försvarmaktens grundsyn ledning*)<sup>2</sup>, the role of command in the new settings has been interpreted by the Swedish Armed Forces Headquarters. In this paper, the relation, as stated in the JGC, of command to warfare, network centric warfare, “revolution in military affairs”, and command philosophy, respectively, is discussed.

An important argument herein is that it is misleading to focus only on *information superiority*. Instead the concept of **command superiority** is put forward and its essential components are examined. We argue that the idea of an integrated network with platforms, sensors, and decision-makers fully linked together serve as an illustration for a deeper understanding of the essential parts of command

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<sup>1</sup> The authors currently serve as analysts at the Armed Forces Headquarters in Stockholm. This paper does not necessarily reflect the official views of the Swedish Armed Forces Headquarters or the National Defence Research Establishment.

<sup>2</sup> The draft is to be approved by the Supreme Commander in September 2000.

superiority. Furthermore, we claim that the most efficient form of command is based on a decentralised command philosophy, albeit allowing a more centralized command at certain occasions.

The paper ends with a discussion of whether the “Swedish” interpretation of the changes in warfare is possible to apply to command in multinational operations and the international environment. The idea of Network Centric Warfare is found to be equally applicable in multinational operations. However, the problems associated with the absence of a common approach to command are obvious.

## 1. Introduction

In a previous article we have touched on important aspects of command doctrine. Among other things, we discussed the linguistic and military meaning of the word *doctrine*, and the relationship between the concepts of command and doctrine, respectively, to different levels of war. We identified the central importance of the concept of knowledge for doctrine and sketched out the desirable contents of operational and command doctrine.<sup>3</sup>

Between spring 1999 and summer 2000 the process of developing a command doctrine has been a part of the restructuring of the Swedish Armed Forces. Thus far, a first draft of a Joint Command Doctrine has been developed. However, the most important result is a final draft for *Joint Guidelines for Command* (JGC). The document is to be followed by a command doctrine, which is closely linked to the development of joint operational and tactical doctrines. We define command doctrine as a formal expression of the knowledge and conceptions that constitute the most important foundations for command in the military defence, i.e. a definition that stresses the importance of doctrine development as a means to gather current knowledge in a certain area.

In the following section of this paper we will briefly present the dramatic changes in the command and force structures of the Swedish Armed Forces and how these changes are connected to the advances in information technology and to the current Swedish security policy.

In the third section we present the positions on command taken in the JGC mentioned above. In turn, the relation of command to warfare, “network centric warfare” (NCW), “revolution in military affairs” (RMA), and command philosophy is outlined. Thereafter, the scope of RMA in the international context is discussed.

In the following and final part, three key issues are put forward: first, the role of command in a network centric approach to military affairs is explored. Second, the unfortunate focus on information superiority is expanded into the more accurate concept of command superiority. Third, we argue that there is a need for a command philosophy that is based on decentralized command, although allowing a more centralized command at certain occasions. Some comments on how the key issues can be applied in multinational operations are also made.

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<sup>3</sup> Lagerlöf, Johan and Pallin, Krister *Doctrine and Command in the Swedish Armed Forces*. Command & Control Research & Technology Symposium, U.S. Naval War College, Rhode Island, June 29-July 1, 1999, conference proceedings, [http://www.dodccrp.org/1999CCRTS/pdf\\_files/track\\_3/053palli.pdf](http://www.dodccrp.org/1999CCRTS/pdf_files/track_3/053palli.pdf).

## 2. Change in the Swedish Armed Forces – a revolution?

### 2.1 *The new defence – flexible forces and conflict prevention*

Like many countries, Sweden is dramatically changing its military. The change is said to be driven by several factors: advances in technology, the surrounding world and changes in the political will and ambition. The political and military establishments both see the need for rapid adjustment to a changing world. The government has given the armed forces a more active role in international crisis management. As stated in the defence bill: "[these] changes mean that we can free ourselves from the constraints of the cold war and make a greater contribution to collective security in Europe, both through diplomacy and through our total defence resources. Our total defence resources will undergo successive changes which make them better adapted to international crisis management."<sup>4</sup> An example of this is the will of the politicians to use military force to nip conflicts in the bud by taking part in international peace-promoting operations early on. The aim is to create a modern, flexible and versatile defence, though still based on national defence conscription. The units and systems of the armed forces should be capable of both defending the country and participating in international operations. Instead of a defence designed to meet an invasion, the vision is a defence capable of reacting to a variety of contingencies and in which adaptability to future needs is an important feature. The future defence is considerably reduced in volume, but technologically sophisticated and versatile, and thus suited for a large number of different types of operations.

Military strategic guidance has been formulated in the *Defence Plan 2000*.<sup>5</sup> The overall mission is internationally to moderate conflict and nationally to prevent war, supported by the ability to avert armed attack. The foundation for this is force capability for armed combat.

The armed forces shall

- be active in peace, crisis and war
- be active in European crisis management
- early respond to threats and armed attacks, thereby increasing the possibility of an enemy refraining from aggression
- through flexibility and offensive action effect an adversary's will to fight and attack.

### 2.2 *Ideas behind the change*

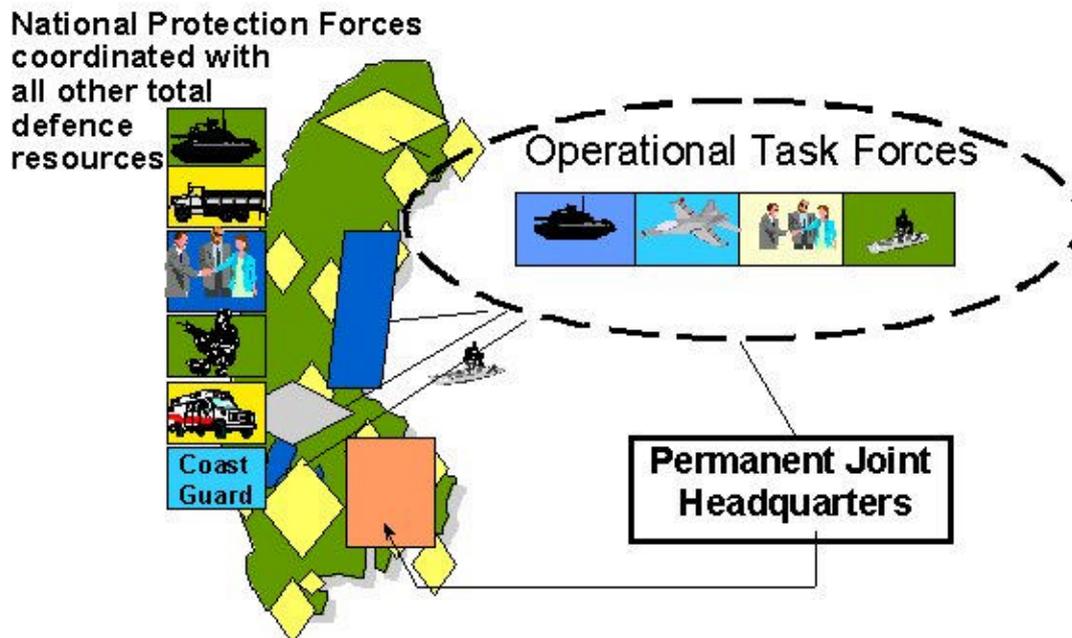
The ideas behind the change can be found in *Defence Vision 2020*.<sup>6</sup> The vision rests on two pillars: a task force organization, and a "revolution in military affairs".

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<sup>4</sup> *The New Defence, Summary of the Government Bill The New Defence* (Det nya försvaret, prop. 1999/2000:30) presented to Parliament on 25 November 1999, Ministry of Defence, Stockholm, Sweden.

<sup>5</sup> *Försvarsplan 2000 (Defence Plan 2000)*, Stockholm, 2000.

<sup>6</sup> *Försvarsmaktens idé och målbild, FMI 2020 Rapport 4, Årsrapport från Perspektivplaneringen (Defence Vision 2020, annual report 4)*, 1999-00, Stockholm, 2000.



**Figure 1: Defence Vision 2020 – A Task Force Organization**

(Adapted from *Försvarsmaktsidé 2020, rapport 3, Årsrapport från perspektivplaneringen* (Defence Vision 2020, annual report 3), 1998-99, Stockholm 1999.)

The task force organization consists of *operational task forces* and *national protection forces*, accompanied by an appropriate command structure. The general idea is to combine a variety of different resources into task forces, tailored for each assignment or mission. The operational task forces are trained and equipped to act both internationally and nationally, whereas the national protection forces have mainly national tasks related to territorial defence.

Early, the so-called Revolution in Military Affairs (RMA) was put forward as a guiding star in the restructuring process. Looking back a few years, the process of restructuring became faster and more thorough than even its most dedicated proponents could imagine.<sup>7</sup>

One important basis for the conception of RMA in the armed forces is a study conducted by the US company *Science Applications International Corporation (SAIC)*. This so-called *DBA-study* investigated the feasibility and affordability of creating "dominant battlespace awareness" (DBA) and Swedish information superiority in the presumptive theatres of operations. Although other components in RMA, as well as more conceptual issues, were discussed, striving for information superiority took much of the attention.

<sup>7</sup> Lieutenant General Johan Kihl in his *Welcoming Remarks*, 4th International Command and Control Research and Technology Symposium, Nasby Slott, Sweden, September 14-16, 1998.

The study pointed to technological solutions for a Swedish DBA, with a number of different sensors that would watch over the potential "battlespace", creating an "operational picture" with possibilities for enhanced situational awareness.<sup>8</sup> The study has also served as a starting-point for further studies within the armed forces community.



**Figure 2. Swedish DBA**

(From RMA. *En ny grund för Försvarsmaktens utformning*, (RMA, a new foundation for shaping the Armed Forces), 1999-03-14. Cover illustration.)

It has been somewhat difficult to follow the main thread in the thinking behind the change. The intention was presumably not to solely focus on information, but unfortunately only the parts that concerned information were highlighted and truly debated. The concept of DBA, though, was difficult to sell to the military and criticism was frequently voiced against it:

- *Well, this is only about information and sensors, not warfare.*
- *Is it feasible?*
- *And what about the enemy – shall we attack them with information?*
- *We can't conduct warfare as the superpower US does, what will happen when we lose the information superiority, what's left of our ability?*
- *This will not help us against asymmetric threats like terrorism, streams of refugees etc.*<sup>9</sup>

<sup>8</sup> RMA. *En ny grund för Försvarsmaktens utformning*, (RMA, a new foundation for shaping the Armed Forces), HKV 09 100:63046, 1999-03-14.

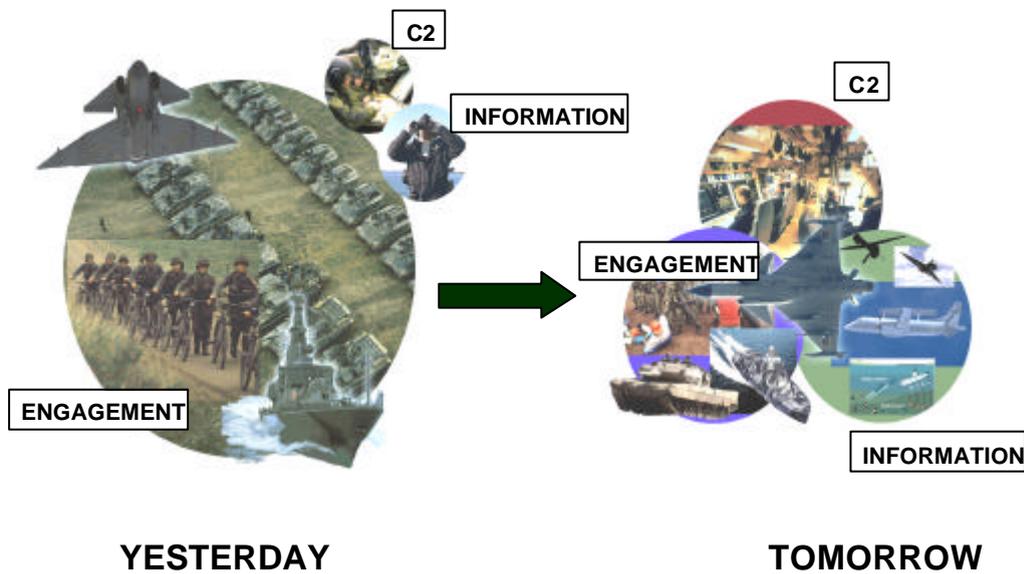
<sup>9</sup> The criticism was both internal and external with arguments published in daily newspapers and military journals.

“Dominant battlespace awareness” obviously needed to be supplemented with something that showed its contextual utility. The focus on superior information could not be isolated from other fields of military interest, mainly the *forces*, who were supposed to do the job, and *command*, which was supposed to make use of the superior information. Thus, the change had to involve a more balanced view on the relation between forces, command, and information.

As a result, the debate was followed by an introduction of the two other main components in RMA:

- *Precision Engagement*
- *Advanced Command and Control or Decision Superiority*

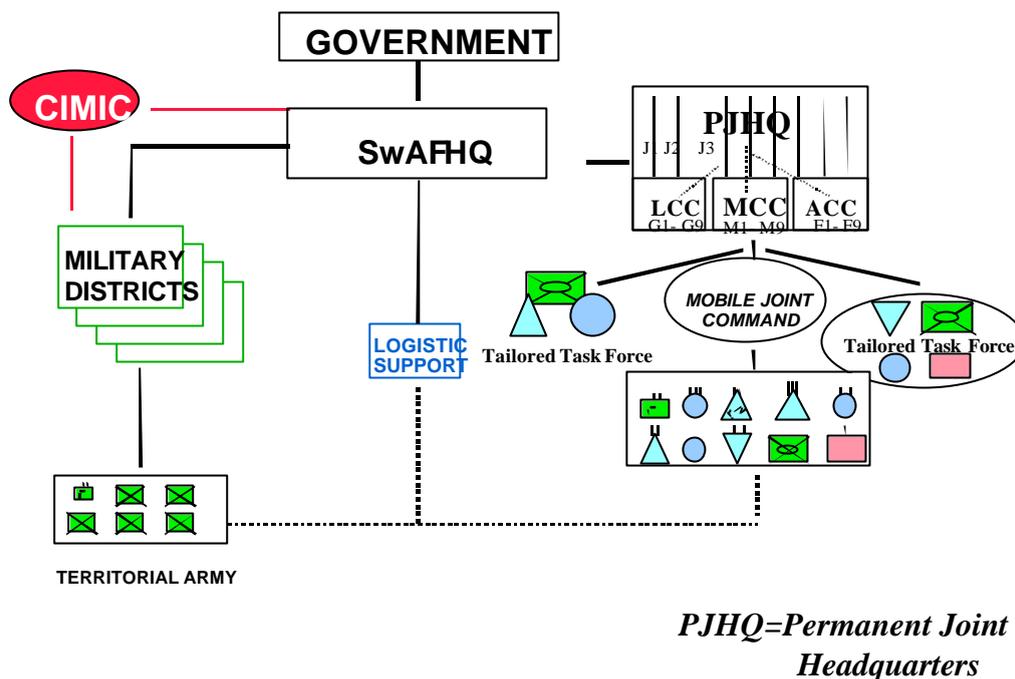
The following picture can exemplify the effort to clarify the idea.



**Figure 3: Change in SWAF – Increased emphasis on command and information**  
(From an unpublished presentation from the Swedish Armed Forces Headquarters, 1999)

An important step towards a new defence with an increased focus on information and command was taken on the 1<sup>st</sup> of July 2000, when the new command structure came into effect. The Supreme Commander has called the overhaul “the greatest change since the conscript system was introduced”. The command structure should have the capacity to deal with a wide spectrum of events, encompassing both national and international contingencies. By reducing permanent staffs from close to thirty to less than ten in numbers, and aiming for an integration of operational and tactical command in one single location, the command organisation will contain fewer levels. For each mission a tailored task force will be assigned with an appropriate command arrangement.

In short, the future state of the Swedish Armed Forces is a flexible and integrated defence capable of participating in a wider range of national and international tasks.



**Figure 4: Command arrangements in the tailored task force structure<sup>10</sup>**  
 (Adapted from an unpublished presentation from the Swedish Armed Forces Headquarters, 1999.)

What are the implications for command? Clearly, the pedagogic problem was, and still is, considerable. The concept of command in the RMA context is not always clear and has to be made more comprehensible. One of the challenges for a command doctrine is to overcome this gap.

### 3. "Joint Guidelines for Command"

How should we understand command in relation to the "new defence"? Clearly, a number of questions have to be raised and answered before the vision of RMA can be widely recognized and understood.

The process of developing a command doctrine has been carried through with broad participation from the Armed Forces.<sup>11</sup> At an early stage in the process, it became clear that before a command doctrine could be fully developed, the organisation needed short-term guidelines for command. Fifteen pages of *Joint Guidelines for Command* were developed, a document aimed for officers and leaders at all levels of the Armed forces.<sup>12</sup>

<sup>10</sup> Acronyms to be interpreted as follows (Swedish acronyms in parenthesis): SwAF HQ – Swedish Armed Forces Headquarters (HKV), PJHQ – Permanent Joint Headquarters (OPIL), LCC – Land Component Command (ATK), MCC – Marine Component Command (MTK), ACC – Air Component Command (FTK), CIMIC – Civil-Military Cooperation [arrangements](CIMIC)

<sup>11</sup> The work has been done in a working group supported by a consultative group, the latter consisting of 50 persons, with representation from Headquarters, Army, Navy, Air Force, International Command (Swedint), National Defence College (FHS), National Defence Research Establishment (FOA), National Defence Materiel Administration (FMV), and the National Agency for Civil Emergency Planning (ÖCB).

<sup>12</sup> The JGC is not a text for scholars or specialists – the target group is civilian and military leaders in the armed forces.

In this section the important positions on, in turn, the role of command in the changing nature of warfare, the image of the network, and the command philosophy in the JGC is presented.

### **3.1 Command, Warfare, and the Revolution in Military Affairs**

Military command will always be influenced by a number of factors. The JGC begins with a section on the method chosen for conducting all military operations: **the manoeuvre approach**. The perception of the eternal characteristics of warfare, as well as the changes of modern warfare, are also introduced in this section, which is based on the operational doctrine.

*“The general method for the military defence for conducting operations is the manoeuvre approach. The manoeuvre approach shall be applied in any action, in peace, crisis and war. (JGC)*

In the JGC, in line with military-strategic and operational doctrine, it is argued that the manoeuvre approach<sup>13</sup> of the Swedish Armed Forces rests on two basic foundations. **The indirect approach**, which reflects the belief that it is possible to avoid confrontation in situations where the opponent is strong and instead head for his weaknesses. By co-ordinating actions against the opponent on all levels, the opponent will be paralysed and unable to continue the fight. In order to accomplish that, the pursuit for **initiative** is viewed as the second foundation. The ability to seize the initiative, or if necessary retake the initiative, and keep it, will prove essential. The opponent will then be forced to constantly fend off. The force shall be concentrated to the opponent’s critical weaknesses, i.e. where the possibilities for a decisive outcome are favourable.

The following section of JGC is dedicated to the nature of warfare. It is stated that uncertainty and friction are to be seen as eternal and intrinsic characteristics of warfare. Unforeseen actions and factors that disrupt or interrupt the expected or wanted course of events – friction – will always be present. Each actor’s aim in a conflict will be to act as efficient as the condition of friction permit, i.e. try to seize the advantage by reducing the own friction and at the same time increasing the friction for the opponent.

Furthermore the changes and development of modern warfare are discussed. It is pointed out that efficient information management and modern technological support for command and control, in combination with weapons with long range and high precision, give opportunities for effect throughout the battlespace. A high ability to manoeuvre supports fast and flexible action. Military conflicts are therefore likely to be fought without fixed frontiers, over great geographical distances, and with intensive periods of action. The possibilities to force your will on an opponent without invasion and occupation of territory have increased, for example through guided missiles or information warfare.

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<sup>13</sup> Manoeuvre warfare refers to war or combat. We find it more accurate to refer to *manoeuvre thinking* or *a manoeuvre approach* as wider concepts including peace-crisis-war contingencies. For more on manoeuvre see *RUSI Journal*, “*Focus: Manoeuvre*”, vol. 145, No 4, August 2000.

As we have seen in the introduction the “revolution in military affairs” is a theme for the change of the armed forces. Nationally and internationally there is a debate whether it is more appropriate to talk about an evolution rather than a revolution. Revolution or not, there is a need to explain the development of warfare. The JGC depicts how the balance between the military functions has switched. Put simply, the role of command is to co-ordinate other functions in order to achieve the greatest effect.<sup>14</sup>

*“Battle can and might be fought in all dimensions – land, sea, air/space – and in the information dimension. Command will co-ordinate the basic functions of warfare – fire-power, mobility and protection – as well as support like logistics and intelligence to achieve success in combat.” (JGC)<sup>15</sup>*

By shifting focus from the abilities in particular sub-systems to the ability of the whole system, effects of synergy can be achieved and available resources will be better utilized.

It has been argued that the notion of an information dimension as a novelty in warfare is false. Information has of course always played an essential part in war. In the JGC it is recognized that information has greater importance than before. Consequently, information is viewed as intelligence, as a protective means, and as a weapon. As we will see, there are good reasons to believe that the importance of information has increased in all respects.

In order to give the change in warfare concrete meaning the JGC uses the now familiar concept of Network Centric Warfare (NCW)<sup>16</sup>.

### **3.2 The role of command in the network**

In the JGC the metaphor of a network proves useful for the understanding of the changes in warfare and their implications for command. The image of a network is also consistent with many changes in the rest of the society, which in turn makes it easier to grasp. Furthermore, the network is compatible with the manoeuvre approach.

*“Decision-makers, information- and weapon-systems are arranged in networks, to be linked according to demand and be used for concentration of force. This is made possible by a common network-based information infrastructure.” (JGC)*

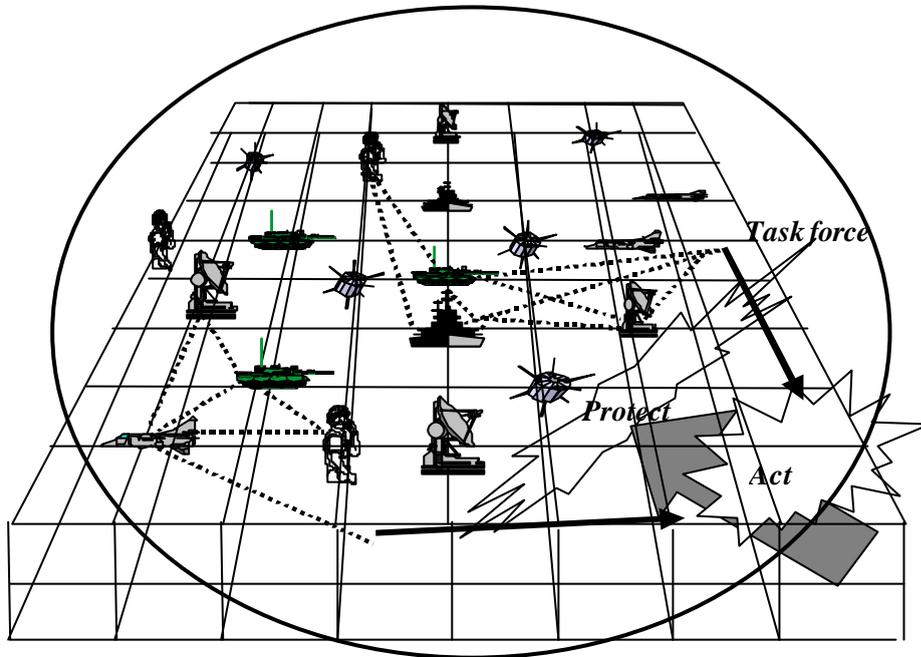
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<sup>14</sup> This is based on Martin Van Creveld who refers to command “as a function that has to be exercised, more or less continuously if the army is to exist and to operate.” *Command in War*, Harvard University Press, Cambridge, Mass, 1985.p 5. Also in the US *Joint Vision 2020* where command and control is defined as the “primary integrating and coordination function”, p. 31.

<sup>15</sup> The functions basic functions of warfare are command, firepower, mobility, protection, intelligence and logistics. “Firepower” is to be interpreted in a broad sense, i.e. all the actions/engagements that will effect the enemy. Mobility is sometimes replaced by manoeuvre. Intelligence can be referred to as information.

<sup>16</sup> For a overview of the conceptual framework see Alberts et al. *Network Centric Warfare*, 1999. “NCW is an approach to the conduct of warfare that derives its power from the effective linking or networking of the warfighting enterprise. It is characterized by the ability of geographically dispersed forces (consisting of entities) to create a high level of shared battlespace awareness that can be exploited via selfsynchronization and other network-centric operations to achieve commanders’ intent”, p. 88.

Behind this statement it is outlined that the continuous and rapid development of information technology imply means of collecting and disseminating information in the network. This provides commanders and units with a faster and more secure access to information and redundancy so that effect is possible even if parts of the network have been knocked out. Action and co-ordination will become easier due to the fact that units have a common situational awareness.



**Figure 5: Decision-makers, information- and weapon-systems in the network**  
 (From *Försvarsmaktens grundsyn ledning (Joint Guidelines for Command)*, final draft, Swedish Armed Forces HQ, 2000)

The ambition, expressed in the JGC, is to attain superiority in ability to command – command superiority – through a better overall ability than the adversary to observe, orient, decide and act.

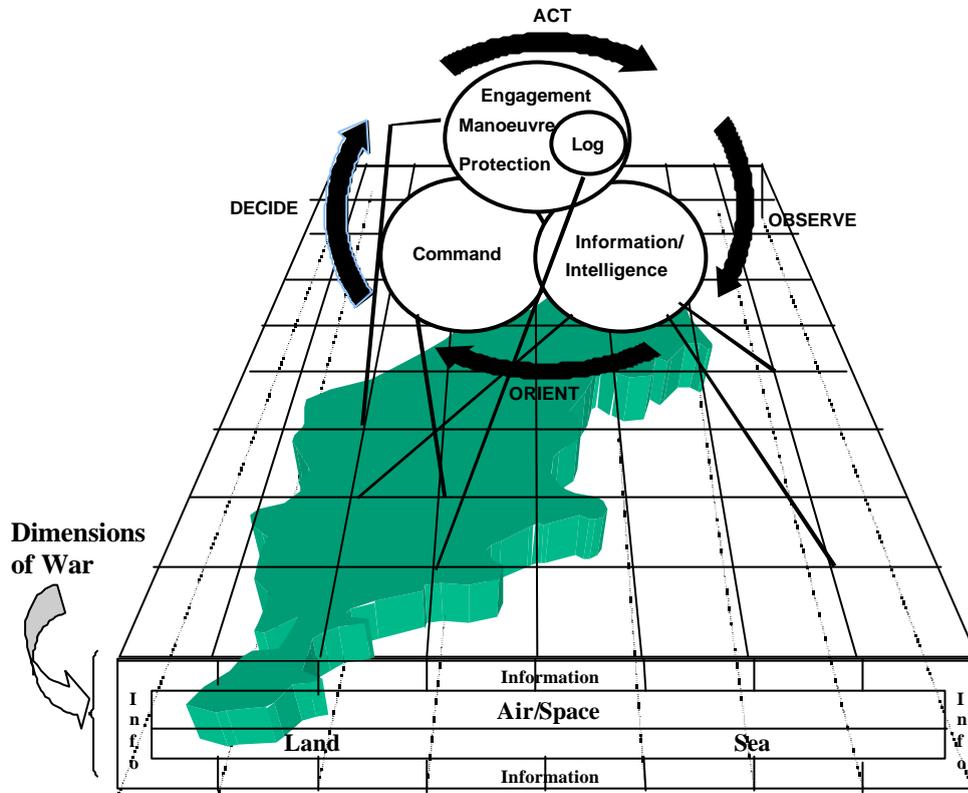
Furthermore, it is believed that command warfare<sup>17</sup> and concentration of command resources will characterize combat. To master command warfare is important both as a means for reducing the opponent’s command ability and for protection of your own command ability. The latter is of great importance for keeping confidence in your own command system.

Access to correct and usable information constitutes one of the most important prerequisites for attaining a state of command superiority. Equally important is the ability to process and assess the information correctly, make the right decision at the critical moment, and to act rapidly.

*“All in all, command superiority demands developed command- and information functions, but also promptly available forces with high mobility, firepower and protection.” (JGC)*

<sup>17</sup> Or Command and Control Warfare (C2W).

In the JGC, the concept of command superiority is meant to foster a comprehensive understanding of the essential role of command in modern warfare. Figure 6 shows how the decision-making process can be linked to the basic functions of warfare.



**Figure 6: Command in multidimensional warfare**  
 (From *Försvarsmaktens grundsyn ledning (Joint Guidelines for Command)*, final draft, Swedish Armed Forces HQ, 2000)

It is also stated in the JGC, that the changes in warfare bring new situations with opponents that have other goals and means at their disposal than in traditional military conflicts. A striving for exploring new methods and means in order to conduct operations shall therefore be present.

The idea of a network is compatible with the vision of the new defence. The command chain permits operations to be commanded with flexibility, based on the demands and possibilities in each situation. Two requirements for functionality are frequent training and high preparedness.

### 3.3 Command philosophy

Given the way we are to use our military forces, the view of the nature of war, changes in warfare, and the striving for command superiority – how are we to command in order to achieve the best results?

In the JGC the Swedish command philosophy is given a great deal of space. In the section called “command philosophy” the basic idea on how command shall be exercised in the armed forces is

outlined. Command is defined as “co-ordination of human actions and different resources in order to achieve certain objectives”. The commander’s foremost responsibilities are leadership and decision-making, the latter including planning, execution and follow-up.

The operations that the military forces are to conduct are often characterized by great complexity, uncertainty in the decision-making process, and demand for fast action. In such situations, it is believed, the most efficient leadership and decision-making are generally attained through decentralized command.

*”The manoeuvre approach – the indirect method and striving for the initiative – presuppose flexibility and freedom of action for any level of the military defence. This demands a command philosophy that allows a combination of centralized and decentralized command, marked by power of initiative, independent decision-making, individual responsibility, and mutual confidence among commanders and personnel.” (JGC)*

The JGC focuses on the commander and his or her duties. The commander is responsible for the fulfilment of the given mission and the decisions that are made. The person most suitable is assigned as commander for the mission. Authority is given in parity to the responsibility. Simple and clear rules regarding division of responsibilities and unity of command shall be upheld.

Decision-making shall be characterized by clear and distinct rules. At the same time commanders ought to have the ability to shift to a more intuitive decision-making and act in unexpected situations or with uncertainties in the decision-making process. Commanders that loose contact with their superiors shall act independently in “the spirit of higher command”. To do so, the superior commander’s intent and command concept must be clear and projected downwards. Subordinate commanders must be familiar with the overall result that is to be achieved at the end of the action and what part they are playing in the grand scheme.

Still, though important, the commander is only a part of the command system. In the JGC it is stressed that the assigned mission is a responsibility for all personnel working together. The unit is given the task in form of an order. All personnel in the unit have a common responsibility for carrying through the task and have to take the necessary risks to achieve the objective. Missions shall be conducted in constant adaptation to the situation.

In order to create the necessary conditions for a competitive force leadership is crucial. According to the JGC, successful leadership is marked by a well-developed communication between commanders and personnel, mutual personal confidence, and possibilities for individuals to fully utilize their capacities. Confidence is built on dialogue and personal relations, which to great extent only can be achieved by close personal contact.

The passage ends with an expression of the value of the personnel. It is stated that the competence of the personnel is the single most important prerequisite of successful command. Every commander has the duty to encourage and give space for subordinated commanders and other subordinates. The ability

and will to act is an inherent characteristic of human beings, and derives its strength from self-confidence, sense of security, courage, and understanding. It is crucial to create an atmosphere with mutual confidence and trust, so that the circumstances that limit or hamper individual action are minimized.

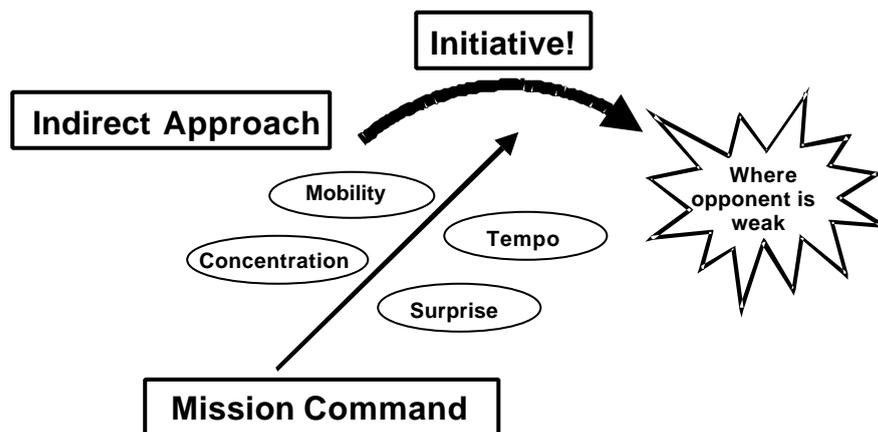
The ability to seize the initiative and to act independently at the right moment requires practise. Individual judgement and dialogue between commander and personnel have to be trained. By consistently and systematically involving commanders and personnel in the command process, the individuals are taught the experience of affecting the common result, whereby the understanding of where individual initiative fits is promoted.

### 3.3.1 Mission command

In the JGC the command philosophy is expressed in the interpretation of mission command.

*“Mission command means that a commander assigns a task, resources, and provides guidelines, and gives the individual that shall accomplish the mission as much freedom as possible in the execution. Mission command is the command method that best supports the requirements of the manoeuvre approach to seize the initiative and to utilize the opponent’s weaknesses, by promoting surprise, mobility, concentration of force, and tempo.” (JGC)*

### Manoeuvre Approach



**Figure 7. Mission command in support of manoeuvre approach**  
(From *Försvarsmaktens grundsyn ledning (Joint Guidelines for Command)*,  
final draft, Swedish Armed Forces HQ 2000)

Moreover, mission command implies that disabling of commanders and staffs or interruption in communications will have smaller consequences. This applies to all levels of command.

Mission command shall permeate all activities in the military defence in peace, crisis and war. The mission-oriented command is said to be built on a national “culture” of initiative both in the armed forces and in the over-all society.

According to the JGC, mission command requires

- that the objective of the mission is well known,
- an atmosphere that stimulates initiative and risk-taking,
- independent and active individuals,
- mutual confidence between commanders and personnel,
- dialogue between commanders and subordinates, and
- high level of training and discipline.

The JGC allows a flexible approach to the command method. Mission command is viewed as the only method that allows the combination of centralized and decentralized command, built on trust, confidence and a common situational awareness. In the framework of mission command, temporarily detailed command can and will be needed. Examples given of such situations can be when specific co-ordination is needed, or when there is a risk of accidental fire. Detailed orders that call for prompt execution, chiefly on the lower tactical level, can be issued.

It is further said that experiences from international operations point out that the political as well as the highest military command level in certain situations experience a need for detailed control of the situation. An example of such means of control is Rules of Engagement (ROE). When Swedish units are included in multinational forces, the method of mission command might have to be adjusted in some respects.

Thus far, we have reviewed some of the positions taken in the JGC and will now continue with a discussion concerning the multinational dimension.

#### **4. Working together – command in multinational operations**

In coalition military operations military units are to accomplish missions in a complex environment. It could be argued that peace support operations often tend to be even more complex than war itself. What, then, characterizes peace support operations?

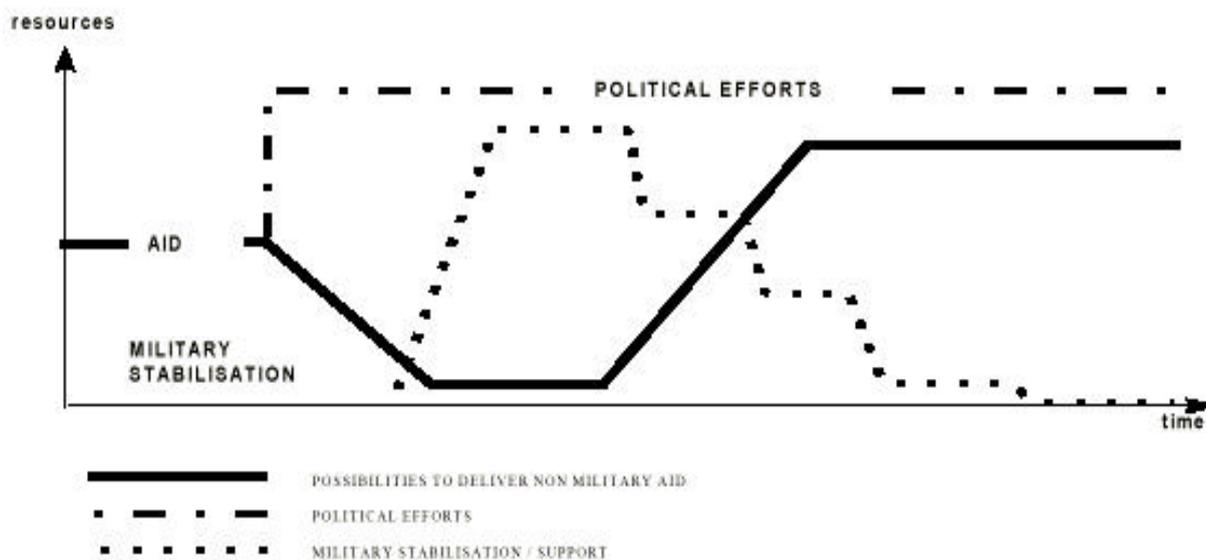
The first characteristic of peace support operations<sup>18</sup> is a composite response, over time involving, often at the same time, not only military means, but also diplomatic and humanitarian means. Thus, in simple

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<sup>18</sup> PSO is the military term used to cover both peacekeeping (PK) and peace enforcement (PE) operations. PSO differ from war in that they are complex operations that do not have a designated enemy but are designed as part of a composite approach involving diplomatic and generally humanitarian agencies to achieve a long-term peace settlement. Military activities in PSO will be, without exception, part of a wider strategy in support of political goals. PK and PE are defined as follows:

- a. Peacekeeping (PK). Operations carried out with the general consent of the disputing parties, as part of a peace process agreed by these parties, and in support of efforts to promote security and confidence, in order to achieve a long-term peace settlement.
- b. Peace Enforcement (PE). Coercive operations carried out to restore or maintain peace in situations of chaos, or

diagrammatical terms, the balanced composite response can (when there is a need for immediate military intervention to stabilise the situation) be presented as follows:



**Figure 8: A composite response**  
(From *Joint Military Doctrine. Peace Support Operations*, Swedish Armed Forces, 1997, p.VIII)

In peace support operations the aim and military task is not to defeat an opponent. Rather, the task can range from preventive deployment to forcing an obstructing party to obey the will of the international community, in either case with the least possible violence. This highly agrees with a manoeuvre approach.

The second characteristic of PSOs is of course multinationality, which means that a number of actors with different traits participate in the operation. A large number of considerations that might not have the same importance in traditional warfare are therefore necessary. These considerations all affect peace support operation planning and execution.<sup>19</sup>

As a result, coalitions for international crisis management are characterized by great complexity. Moreover, the multinational forces usually have to deal with several belligerent parties, different ethnic groups and values, limitations in the use of force in respect to given rules of engagement (ROE), security of civilians and ongoing political efforts as well as national limitations in the use of units. In addition, a frequent meddling of national governments tends to occur. These factors and the usually great differences in quality and leadership among the different national contingents inside a multinational force

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between parties who may not all consent to intervention and who may be engaged in combat activities, in order to help create the conditions for diplomatic and humanitarian activities to support political goals. See *Joint Military Doctrine. Peace Support Operations*, Swedish Armed Forces, 1997.

<sup>19</sup> The considerations include political considerations, language barriers, cultural backgrounds, military capabilities and training, equipment interoperability, and logistic support systems. See *Joint Pub 3-07. Joint Doctrine for Military Operations Other Than War*, JCS, USA, 1995.

have always been a great challenge for command. And *command* itself, as we will see, is not always approached with common understanding.

#### **4.1 RMA and the importance of a common approach to command**

As we have seen in section 2, the revolution in military affairs is viewed as a pillar for the changing military in a Swedish national context. Could the supposed RMA also be said to mark the multinational context of peace support operations? Given the origins of RMA<sup>20</sup> some observations should be made.

First, RMA as it was perceived during the 1980s and the better part of the 90s was a military-technological revolution (MTR). A complete revolution in military affairs has historically been something that has not only required a proper implementation of technology in weapons, information and command systems, but also a development of appropriate strategic, operational and tactical concepts, as well as a suitable organization. Furthermore, the roots of RMA and early applications, most notably in the Gulf War 1991, are clearly focused on military needs and capabilities.

However, despite the history of RMA, there is spillover to the more complex arena of international crisis management. First, the general significance of the idea of enhanced efficiency by putting information, decision-makers, and military means for effect into the same network is valid for many types of operations and activities.<sup>21</sup> Also, for the military the challenges posed by multinational peace support operations during the 1990s have inspired changes in different RMA concepts.<sup>22</sup>

Still though, the obstacles to a “full” RMA in multinational peace support operations are considerable. Given the amount of effort put into the implementation of new technology, concepts and organization, and the difficulties experienced on a national level, the challenge on a multinational level is by no means less.

There will inevitably be differences between the contributors’ capability of “networking” and delivering information, command, and effect. Most obvious is of course technological gaps, e.g. the much discussed discrepancy between the United States and its Nato partners.<sup>23</sup> Apart from differences in *level* of and *access* to technology, there is also the question of technical interoperability and standardisation. Since all contributing nations bring materiel developed for national needs, long term processes of making equipment compatible with others’ will continue to be an obstacle to the idea of a

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<sup>20</sup> The idea of the current RMA has its roots in Soviet military thinking of the 1970s and early 1980s. The Russians realized the enormous potential in creating ‘sensor-to-shooter’ or ‘intelligence-strike’-complexes by exploiting the latest innovations in information and munitions technologies. Development of beam- and particle weapons in the near future was also expected. The possibility of observing and forcefully engaging targets at very long distances with precision previously unheard of, in almost real-time, suddenly existed. See e.g. Fitzgerald, Mary C, in Frank, W.C & Gillete, P.S: *Soviet Military Doctrine from Lenin to Gorbachev, 1915-1991* or *Joint Forces Quarterly*, Summer, 1998.

<sup>21</sup> For instance, the development of e-business vividly demonstrates this, see Alberts et al, *Network Centric Warfare*, pp. 23-50.

<sup>22</sup> A good example is the modification made in *Joint Vision 2020*, as compared with its predecessor *Joint Vision 2010*. The first-mentioned stresses the importance of dominance across the full spectrum of military operations, not only in war – persuasive in peace, decisive in war, preeminent in any form of conflict.

<sup>23</sup> "Responding to the US-led Revolution in Military Affairs" in *Nato Review*, Spring-Summer 2000, pp. 4-7

network in which all contingents can be added without friction. Even if the technological obstacles are manageable in for example connecting information systems, it is most likely that some sensitive information will have to be protected, and access without constraints will be denied. Furthermore, a national contingent might not want to show their true capabilities in intelligence gathering and processing.

Finding a suitable organization for a peace support operation is a delicate matter, which has to be dealt with specifically for each mission. In national or unilateral as well as in multinational operations it is desirable for the composite military organization to share operational procedures and to understand the commanders' intentions. One addition in a multinational context is that the relation to non-governmental organizations, local political leaders, and national or local authorities has to be considered. Indeed, a potentially very complex interaction pattern between the entire range of relevant actors might evolve.

Also, the philosophy of command varies both between countries and military and civilian actors. Moreover, the actual practice may be somewhat different and vary depending on the mission. Working together internationally raises the question of whether it's necessary or even possible to achieve a common approach to command. And if not, how do we cope with the differences in order to be effective? In order to share a common approach to information and command, a common perception of the mission is paramount. We need to know what we want to achieve, how and with what resources.

Furthermore, there hardly exists any undisputed concept of how the changes in warfare will affect the multinational environment. Shared training, education, and concepts are often on a very basic level and even as such, they are hard to implement. Clearly, achieving interoperability between organizations, processes, and technologies in multinational operations is a challenge. The idea of network centricity and the complex context of multinational operations do share common ground, but many obstacles have yet to be cleared.

We will now continue by highlighting three key issues following the presentation of the positions taken on command in *Joint Guidelines for Command*. These are

- the usefulness of the image of a network,
- the suggestion that command superiority is more a more appropriate concept than information superiority, and that
- the changes in warfare promote decentralized command.

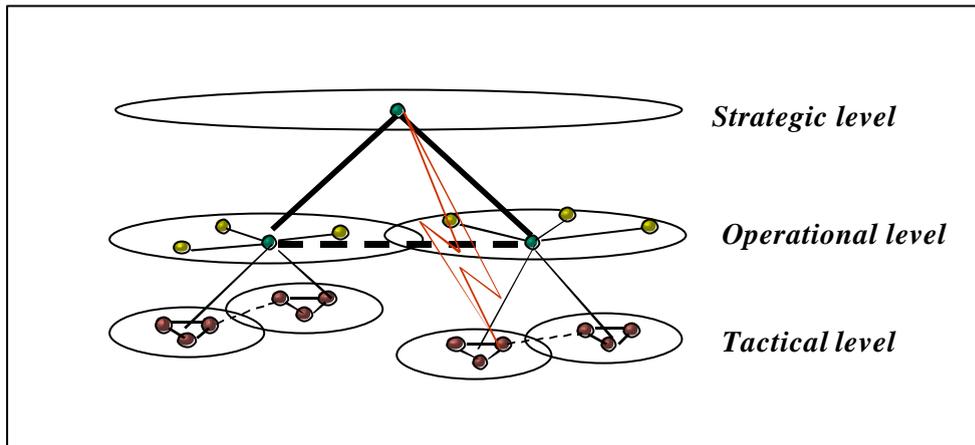
We will also comment on their validity in the complex international context of coalition command.

## **5. Key issues**

### **5.1 *The network is a useful metaphor!***

We have seen in section 2 how the idea of an integrated network with platforms, sensors, and decision-makers fully linked together can serve as an illustration for a comprehensive understanding of the changes in warfare and their implications for command.

The continuous development of new information technology implies means of creating a network structure, allowing enhanced collection, processing, analysis, and dissemination of information. This provides commanders and units with both faster and more secure access to information, and redundancy, so that effect and engagement is possible even if parts of the network have been knocked out. Action and co-ordination will become easier due to the fact that units have a better situational awareness.



**Figure 9: Hierarchy of networks**

(From LUST. *En försvarsmaktsgemensam studie för ledningsöverläge. Årsrapport till HKV. (A joint study for command superiority. Annual report to the Headquarters).* Försvarets forskningsanstalt (National Defence Research Establishment). Stockholm, 2000)

The network can be seen as different levels or layers that can be combined and tailored for each mission. All units connected are interoperable through common interfaces. This means flexibility in choice of command organisation and force structure. The subsystems constitute “building bricks” of different colours and different material that, due to their common-sized joints, are easily put together in suitable constellations. The autonomous parts of the network can operate with a common situational understanding and operational procedures, enabling so-called self-synchronization.<sup>24</sup> A condition for this is an understanding of superior commanders’ intent and a high ability to act independently.<sup>25</sup>

The image of a network is also consistent with the changes in the rest of the society, notably the commercial sector. On a macrolevel, the traditional power base of the nation-state is undermined and the complex patterns of governmental and non-governmental organizations are characterized as networks. On a microlevel, the public, empowered by information technology, is forcing a general change in organizational behaviour, often described as the road to a “network society”.

<sup>24</sup> See Alberts *et al*, *Network Centric Warfare*, 1999, pp. 166-170.

<sup>25</sup> For further reading on the importance of projecting command concepts, see Builder *et al*, *Command Concepts – A Theory Derived from the Practice of Command and Control*, RAND/National Defense Research Institute, 1999. By conveying his intent, the commander can reduce the amount of details in exercising command, instead trusting in the initiative and creativity of the subordinates.

To some extent, this can also be applied to existing military structures. The use of Combined Joint Task Forces (CJTF) in international multinational operations is an example of a “network”-oriented approach to organizations. As such, the metaphor is indeed useful. However, an important consideration is that the “network” in a coalition context encompasses not only different military organizations, but also a variety of other actors, following the idea of a composite response. Moreover, problems in conveying the intent of the operation because of national differences and different motives might stand in the way of self-synchronization.

Thus, today the notion of an international network-oriented organization in peace support operations is to some extent flawed because of the lack of interfaces, or “joints”, between different organizational cultures and command philosophies. However, the process of developing such interfaces and enhancing interoperability is well under way.<sup>26</sup>

## ***5.2 Focus on command superiority, not information superiority!***

“Information superiority” can be viewed as a state, where one part has the advantage over the opponent concerning access to correct and usable information.<sup>27</sup> Information superiority can be established during a certain period of time, a defined geographical area, or be related to a specific operation. However, the creation of information superiority is not an end in itself. Unrelated to the decision-making process and the overall command process, it runs the risk of being pointless. How can we exploit the superior information?

As we have seen in the JGC, the concept of command superiority is put forward. In general terms command superiority is a state of advantage over the opponent, through a better overall ability than the adversary to observe, orient, decide and act.<sup>28</sup> Moreover, the concept stresses the importance of command rather than information. This is the essence of JGC. If we examine each part of the ability to observe, orient, decide and act, i.e. the decision cycle or the so-called “OODA loop”<sup>29</sup>, we will find the crucial aspects of command superiority.

Striving for command superiority in each phase of the decision cycle, has important implications: In the observation phase, there is a need for access to usable information. In the orientation phase, it is essential to evaluate the information correctly. Further, in the decision-making phase, it is the ability to make the right decision at the critical moment that matters. Last, in the action phase, the required resources must be available for engagement and effect. An elementary analysis as this gives us an idea of

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<sup>26</sup> Processes and documents like PARP, STANAG, and initiatives like SHIRBRIG; NORDCAPS etc.

<sup>27</sup> The US definition is “the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary’s ability to do the same (JP1-02)” quoted in *Joint Vision 2020*, p 8. Another interpretation is Alberts’ “a relative state that is achieved when a competitive advantage is derived from the ability to exploit an information advantage”, proceedings, CCRTS, Monterey, 2000.

<sup>28</sup> A similar argument can be found in the US *Joint Vision 2020*, where it is argued that “the joint force must be able to take advantage of superior information converted to superior knowledge to achieve ‘decision superiority’ – better decisions arrived at and implemented faster than an opponent can react...”. Furthermore, it is discussed how the superior information should be exploited, pp. 8ff.

<sup>29</sup> The generic model of military decision-making, known as the OODA-loop, was devised by USAF colonel John Boyd.

the need for supporting technologies and the human qualities that are required. It will also provide a sound conceptual and functional basis for the users, and for further doctrine development. There are trade-offs involved, for example, capability in the observation-phase can be traded for skills in the action-phase.<sup>30</sup>

The pursuit for command superiority should also be considered as perfectly applicable in the theory of the manoeuvre approach and will promote an understanding of the importance for keeping the initiative, thereby forcing the opponent to continuously react. To operate inside the opponent's overall decision cycle can basically be accomplished in two ways. First, by improving your own system, i.e. reducing the time needed and enhancing the quality in each phase. Secondly, by measures that will slow or negatively affect the opponent's decision cycle.

Any action taken will be observed and therefore affect the opponent's decision making process. The more significant action taken, the greater effect it will have on the decisions made by the opponent. The extent of the effect is a question of what means that are used. The effect may be disruption of the enemy commander's decision process, forcing him to reconsider his course of action and, perhaps, to begin his decision cycle all over again. If a succession of unilateral impact is established, then the effect might be not only disruption of his decision cycle but also the creation of a state, in which the enemy can no longer react coherently. This is exemplified in figure 10.<sup>31</sup>

Of course there are a number of decision-making processes or OODA-loops in progress at the same time. The command system will have to deal with a multiplicity of different decision cycles that represent different units and forces operating simultaneously at the tactical, operational, and strategic levels of conflict. The battlespace contains a system of complex interactions among very different kinds of military forces, all with decision cycles of widely varying length. The commander coordinates and facilitates the synchronization of the different decision cycles of his forces.

Analysis of the components of command superiority will eventually lead to the crucial human factors of command. Understanding and analysing the opponent and his command system is fundamental for developing your own ability. The importance of appropriate balance between the military functions, and the interaction with the decision cycle is also highlighted by the concept of command superiority.

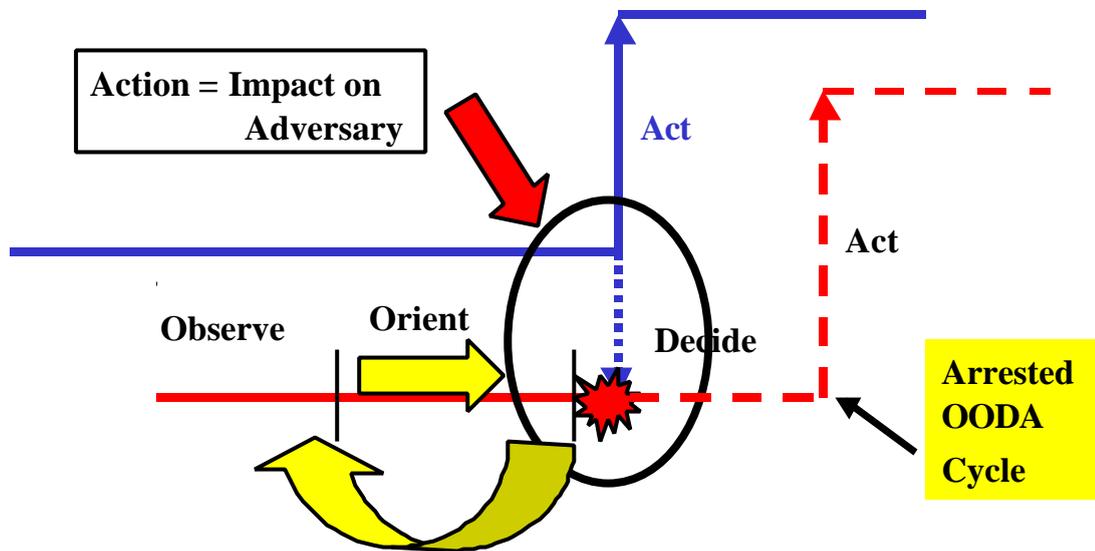
How do we apply the pursuit for command superiority in the multinational context of peace support operations? Obstacles and possibilities can be found in its basic components. Command superiority demands, as we have seen, a number of things. First, access to and means of adequately gathering and managing superior information are essential. With a number of different information systems, channels for intelligence, and procedures involved this is a complex task. Add to that the national differences in willingness to supply information, and the situation becomes even more challenging. In the same way the

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<sup>30</sup> For a theoretical discussion on the decision cycle, see Bartolomasi, Paolo, "The realities and challenges for concepts and capabilities in Joint Manoeuvre", *RUSI Journal*, Nor 4, vol 145, August 2000, pp.8f.

<sup>31</sup> Edward A. Smith has contributed to the conceptual context by combining the "network centric approach" to warfare with the decision cycle, see "Network Centric Warfare: Where's the beef?", *Naval War College Review*, 1999., p. 10ff.

remaining phases of the decision-cycle can be analysed. The analysis will help us identify essential interfaces for the integration of forces, decision-makers and information systems.



**Figure 10. Interaction between decision cycles**

(From Smith, Edward, "Network Centric Warfare: Where's the beef?", *Naval War College Review*, 1999)

Further, this also stresses the fact that a commander inevitably will have to accept the complexity and different nature of a peace support operation. For example a commander's decision-cycle will probably be affected or disrupted due to political considerations, vague objectives, or limitations of use of forces.

### **5.3 The changes in warfare promote decentralized command!**

Some would argue that the advances in information technology and the increased possibilities to process information lighten the fog of war and make it possible for the superior commander to exercise a centralized command. We acknowledge the fact that the possibility for centralized and detailed command has increased at some occasions, but we do not believe in the virtue of it. The executing commander in the field will always have a better understanding of the situation, especially concerning human aspects of war, like fatigue, morale and discipline among the troops.<sup>32</sup> Furthermore, military operations are often characterized by great complexity, uncertainty in the decision-making process, and demand for fast action. In such situations the most efficient leadership and decision-making is generally attained by decentralized command. The network and the inherent synergy between information technology and mission command will enhance effectiveness. Understanding of the superior commander's intent is a cornerstone for a decentralized command style, and the common information

<sup>32</sup> For a discussion concerning the relation between information superiority and mission command in the US Army see Garrett "Information superiority and the Future of Mission Orders" in *Military Review*, November-December 1999, or in more general terms. Coakley *Command and Control for War and Peace*, 1992, p.123-140.

infrastructure will support this. When the situation deviates from the plan, subordinates trained to think and act independently can adapt in ways consistent with the commander's intent.

In Sweden, mission command has, at least on the tactical level, been the foundation since World War II. It is deeply rooted in the armed forces and in the rest of the society. Furthermore, there is a cultural dimension. In a society like the Swedish one, that has virtually become an "information society" and where the "new economy" accustoms young people to work in a very decentralized manner, without fixed hierarchies, traditional top-down hierarchical command structures are widely disputed. For the next generation of soldiers, centralization will not be an option.

Having said that, the need for temporary centralized command, given the immediate impact that tactical decisions can have on strategic outcomes, has to be recognized. In a command system marked by decentralization, it will be possible to temporarily exert a more centralized or detailed command style. The opposite is in all probability very difficult. A challenge for the superior commanders is not to interfere without a very good reason. The centralized command must be the exception from the rule, otherwise continuous superior interference in subordinate level decision-making will also have the effect of rendering subordinate commanders inexperienced in dealing with the challenges that arise when, for instance, communications break down. Commanders adhering to the manoeuvrist approach should beware of the instinct to interfere, only doing so when not to do so would undermine the overall objective.

The issue of decentralization or not in peace support operations can be illustrated by the following example. It also contains aspects that touch on command superiority and the metaphor of the network itself.

#### ***5.4 A common approach to command – the Bosnia experience***

The Swedish experience from the participation in the UNPROFOR-mission in Bosnia includes all the complex aspects of the international environment mentioned in section 4. In addition, the Swedish battalion had to handle an *Area of Responsibility* (AOR) of about 4000 square kilometres, having also to supply itself from Split to Tuzla – 5 to 6 days roundtrip on miserable roads and under frequent fire. We are convinced that under these circumstances, the Swedish traditionally mission-oriented command and the high degree of subordinate autonomy were the prerequisites of success and survival on the tactical level.

After the Dayton-agreement the Swedish battalion became subordinated to the US 1. Armoured Division. The situation of the battalion – in logistics, the size of the AOR etc - changed to the better. However, the more radical change, from a Swedish point of view, was that, for the first time, Swedish units were placed under NATO command.

To some extent, different military cultures met when the Swedish battalion was integrated into the NATO structure, especially with regard to the approach to command. The US command approach turned out to be quite different. Orders were given in detail, sometimes directly to the Swedish battalion

or even to its subordinated units, without consulting the brigade command. The overall aim or background information, however, was often left out. On the other hand an American officer could perceive an order given inside the Swedish battalion as being “just basis for a discussion”. This led to some confusion.

One interpretation of the impressions from the above outlined collision between apparently different command philosophies might be that the US behaviour was a result of an extended technological possibility – the fundament for RMA/NCW. The possibility of increased control and direct influence through centralized and detailed command, omitting several links in the chain of command, is of course tempting. The scenario is just as likely to occur at higher levels. For instance, even if the UN system did represent a mission-oriented command structure inside the military force, an extensive and detailed command from the political level and the United Nations was exerted. The prospect of increased control in managing international operations might be a very efficient approach in the short-run, especially considering the fact that peace support operations generally involve lower risk-taking than war, and centralized, detailed and regulating command might indeed lower risk at all levels. Furthermore, in a system where trust in subordinate contingents’ capabilities is missing, reasonable or not, commanders might feel compelled to exert a more direct influence over the chain of events, thereby correcting some of the shortcomings in integration between different units. However, this command style is probably only possible when the subordinate forces involved are few and when the tempo of operations is low. At the same time the “discussion”, or dialogue, as a way to clear out the overarching aim of the task, is the fundament of mission-oriented command. By interpersonal dialogue, the commander’s intent is easier projected down to subordinate commanders and their units. This process enhances trust, or uncovers the truth about different contingents’ capabilities and organizational cultures, thereby reducing the need for detailed control. In the long run, together with an increased frequency in international combined joint exercises, this will surely provide force commanders and planners with the possibility of “network centric” operations. Contingents with common interfaces can hereby be added with little friction.

### **5.5 Concluding remarks**

We have shown how the Swedish Armed Forces have interpreted the role of command in changing perception of warfare. The Armed Forces are now procuring the latest technology, developing new concepts, and implementing a new organization. Clearly, the emphasized cornerstones in the conceptual basis are essentials in understanding this great process of change:

- The image of a *network*, indeed vital for enhancing co-operation with other actors nationally and internationally.
- The focus on *command superiority*, that stresses the importance of command and a balanced view of the functions required in network centric operations.
- The necessary *striving for decentralization* in order to fully exploit the concept of network centric operations.

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