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**Competencies of Future Commanders in Network Centric Operations**

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## **ABSTRACT**

### **Competencies of Future Commanders in Network Centric Operations**

The continuing developments in information and communication technology transform traditional military operations in more network centric operations (NCO). Implementation of NCO not only concerns technology, but involves a transformation of almost all aspects of the military organization: doctrine, material, organization, training, personnel, culture, and leadership.

NCO enables 'virtual' collaboration of individuals that are geographically, temporally and/or hierarchically dispersed. Individuals will increasingly collaborate in virtual, ad hoc formed teams that have to accomplish specific missions. The nature of virtual teams and the network centric environment they are operating in require effective 'distanced' and 'distributed' forms of military leadership. Both forms demand enhanced and additional competencies of commanders. The present paper reports on a study of enhanced and additional leadership competencies for future commanders in NCO.

For the identification of leadership competencies for commanders in future NCO we applied an integrative competency framework which was developed by the first author. Most current leadership competencies lack this kind of theoretical structure, show little validity, and therefore cannot be applied effectively in human resource activities like selection, training, education, and performance appraisal.

The competency framework consists of three overall competency circles that describe human behavior in general: physical, cognitive intelligence and emotional/intuitive competencies. These three competency circles overlap and thus form four more competency areas: emotional intelligence competencies, instinctive competencies, psychomotor competencies and an area of convergence where all competency areas combine. This competency area concerns the interaction competencies that are essential for effective performance, but are too abstract and complex to use in human resource activities. Therefore, the competency framework also contains an effective competency circle, in which competencies are neither too concrete nor too abstract and complex to use for human resource activities.

Based on a literature search on distanced and distributed leadership in business settings and specific literature on leadership in NCO, competencies of future commanders in NCO were identified and placed within the competency framework. The study offers an initial exploration of the enhanced and additional leadership competencies of future commanders in NCO.

**Keywords:** Network Centric Operations, command, leadership, competency

## 1.1 INTRODUCTION

The continuing developments in information and communication technology transform traditional military operations in more network centric operations (NCO). In a network centric environment knowledgeable entities in the battlespace, that are geographically, temporally or hierarchically dispersed, are effectively linked or networked by information and communication technology to increase combat power (Alberts et al., 1999). A network centric environment makes it possible to operate more flexible, interoperable and agile in the increasingly complex, dynamic and insecure circumstances of today's military operations (Alberts et al., 1999).

Networking the military force through communication and information technology enables virtual collaboration of individuals that are geographically, temporally, and/or hierarchically dispersed. Therefore, individuals will increasingly collaborate in virtual ad hoc formed teams that have to accomplish specific missions with little or no history of collaboration (Warne et al., 2004).

Virtual teams come in many varieties and 'virtuality' can be defined on many dimensions (Zigurs, 2003). Griffith & Neale (2001, in Zaccaro et al., 2004) describe two dimensions of virtualness:

- 1) Percentage of time spent working apart (or team dispersion)
- 2) Level of technological enablement (ranging from no technology or face-to-face interaction to a broad range of communication technology).

Team dispersion is often defined in terms of geographic and temporal dispersion (Mittleman & Briggs, 1999, in Zaccaro et al., 2004), but team dispersion can also include organizational and cultural dispersion (Zigurs, 2003). An additional characteristic of virtual teams is the relative permanence of the team. Team membership in virtual teams is often temporary and dependent on transient organizational needs (Zaccaro et al., 2004).

In this paper virtual teams are defined as a collection of two or more individuals who are geographically, temporally or otherwise dispersed and who collaborate using a combination of telecommunications and information technologies in order to accomplish a task or mission (Townsend et al., 1998; Zigurs, 2003; Zaccaro et al., 2004). Virtual teams rarely meet face-to-face. "They are set up as temporary structures with fluid membership, existing only to accomplish a specific task or mission, or as more permanent structures used to address ongoing issues, such as strategic planning" (Townsend et al., 1998). Depending on organizational, task, and mission demands each virtual team varies in its mix of characteristics, appropriate communication processes, used technology, and member roles (Zigurs, 2003).

Virtual team collaboration in future NCO has consequences for command at the operational level. Command will change in a virtual, distributed, and networked organization. The role of commander will be a more facilitating one (Van Baal, 2001). To operate successfully in future NCO a commander needs to make sure his units are interoperable and agile (Alberts & Hayes, 2003). A commander can achieve interoperable and agile units by making sure the units have the information and resources to realize command intent.

The leadership aspect of command will also change in a virtual, distributed, and networked organization. By their very nature, virtual teams may exhibit more open boundaries, flexible role structures, and self-managing qualities (Zaccaro et al., 2004) than traditional military teams. The nature of virtual teams and the network centric environment they are operating in require effective distanced and more distributed forms of military leadership (Fair, Connaughton and

Daly, 2004). *Distanced leadership* concerns leadership from afar or leadership that is geographically separated from the team. Distanced leadership often implies distributed leadership as well. *Distributed leadership* involves the sharing of leadership roles and activities between leaders and team members because the environment is too complex, dynamic and insecure for one single leader to operate effectively. Distributed leadership may have different forms, for example delegated leadership, co-leadership or peer leadership (Brown & Gioia, 2002).

Although leadership will be distanced and more distributed in future NCO, leadership activities will remain the same (Fisher & Duncan Fisher, 2001; Kayworth & Leidner, 2002; Brown & Gioia, 2002). However, the leadership activities will be executed with different methods (Fisher & Duncan Fisher, 2001) and within the more complex, dynamic and insecure environment of virtual networked teams (NCO) (Brown & Gioia, 2002). Leaders need enhanced and additional competencies to use other and different methods and to cope with this more complex, dynamic and insecure environment of NCO. What competencies, besides the leadership competencies in the traditional military organization, do leaders need to be effective distanced and distributed leaders in virtual, networked teams?

This paper offers an initial exploration of the enhanced and additional competencies of leaders in future NCO. Enhanced and additional competencies are identified within an integrative competency framework. The competencies are derived from literature on distanced and distributed leadership in virtual teams and from specific literature on leadership in future NCO. First, the competency framework is presented. Consecutively, literature on distanced and distributed leadership in virtual teams and specific literature on leadership in future NCO are discussed. Enhanced and additional leadership competencies are then derived from the literature and placed within the competency framework.

## **1.2 AN INTEGRATIVE COMPETENCY FRAMEWORK**

In this paper a conceptual competency framework is used to identify competencies for future leaders in NCO. This competency framework (Van Bommel et al., 2005) is developed to resolve some of the conceptual problems with the current competency approach applied in the human resource management of many organizations. Many current competencies have low or minimal validity (Van de Hoven, 2000; De Jong e.a., 2000; Tromp, 2001; Van Bommel, 2002), which not only decreases the application of competencies in human resource activities like recruitment, selection, training and appraisal, but also reduces the integration of these different human resource activities. The aim of the competency framework is to facilitate the identification of valid competencies and to increase the application and integration of several human resource activities in organizations.

### **1.2.1 THE CONCEPTUALIZATION OF COMPETENCY IN THE COMPETENCY FRAMEWORK**

In the competency framework competencies are defined as skills that vary on a continuum from concrete, simple, specific and observable behaviors, like “running” or “reading”, to more abstract, complex, general and not directly observable behaviors like “collaborating” and “managing people” (Van Bommel et al., 2005). This continuum of competencies defined as skills from concrete behaviors to abstract behaviors is presented in figure 1.

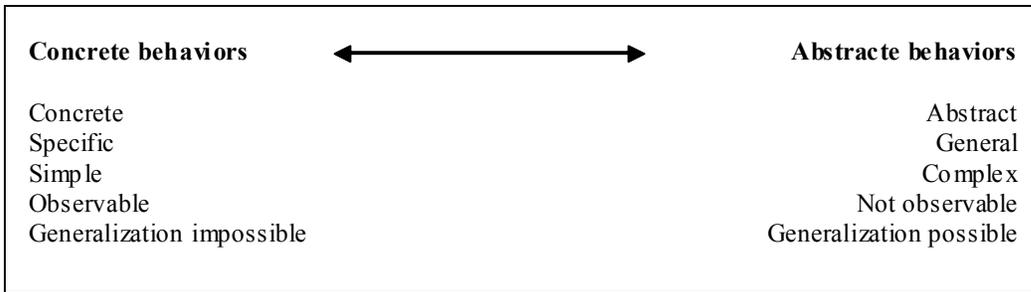


Figure 1: Continuum of competencies

### 1.2.2 THE COMPETENCY FRAMEWORK

The conceptual competency framework, based on the CAR model of Pigeau & McCann (1999, 2001, 2002) consists of three competency areas (intellectual, physical and emotional) that overlap and influence one another. The continuum of competencies applies to these three competency areas. The three competency areas, their overlap and the continuum of competencies are presented in the form of three overlapping circles. The overlapping circles form seven competency areas. Figure 2 presents the three overlapping circles, the seven competency areas and their labels.

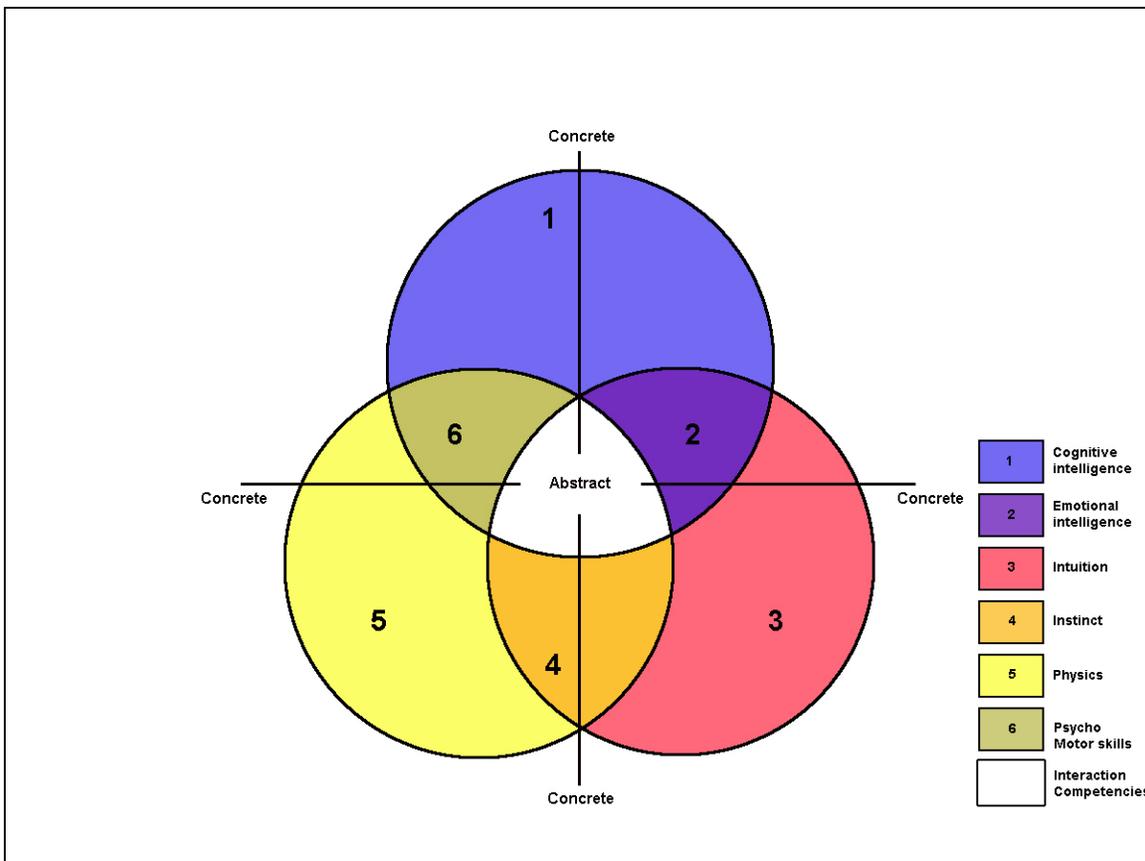


Figure 2: The seven competency areas in the competency framework

The seven competency areas are defined and explained as follows:

1. The area of *cognitive intelligence competencies* concerns behaviors on the continuum of competencies that have to do with skilled performance of mental or intellectual tasks like logical reasoning, analyzing and conceptualizing.
2. The area where intellect and emotion interact is called *emotional intelligence competencies*. These competencies concern behaviors on the continuum of competencies that integrate emotions and reason in such way that emotions facilitate cognitive processes and emotions are regulated by cognitions (Yukl, 2002). Emotional intelligence competencies are for example considering cultural differences, reassuring and coping with stress.
3. The area of *intuitive competencies* relates to behaviors on the continuum of competencies by which situations and people are sensed without reasoning. Intuition is about insight without thought. Examples of intuitive competencies include sensing danger, atmosphere, threat or fear.
4. The area where emotion and physical skills overlap concerns *instinctive competencies*. Instinctive competencies are behaviors on the continuum of competencies by which situations and people are sensed well and acted on effectively. Instinctive competencies are for example courage and nerve.
5. The area with *physical competencies* concerns behaviors on the continuum of competencies that require physical effort and involve the senses and the body, for example running or seeing colours. The physical competencies mostly pertain to the physical well-being of a person.
6. The area where physical skills and intellect overlap is called *psychomotor competencies*. These competencies require both motor skills and intellect. Psychomotor competencies relate to behaviors on the continuum of competencies that become routine after repeated practice. Examples of psychomotor competencies are typing, driving a car, horse riding.
7. In the center of the competency framework the six competency areas converge. The center of the competency framework applies to complex and abstract behaviors on the continuum of competencies. The complex and abstract behaviors in this area are mostly interactive and are therefore called *interaction competencies*. Examples of interaction competencies are collaborating, leading people, communicating or decision-making.

The interaction competencies in the center of the competency framework show an enormous overlap. A behavior like “collaborating” for example also contains behaviors that form an aspect of decision-making, communicating, and leading people. Because the overlap in this competency area is extreme, the competencies in this competency area cannot be used effectively in human resource activities like recruitment, selection, training, and performance appraisal. In other words, due to the enormous overlap it is impossible to recruit, select, train and appraise leaders separately for collaboration, decision-making, communicating and leading skills. However, this does not mean that interaction competencies are not important. Interaction competencies are essential for effective functioning, but because of the overlap it is not possible to recruit, select, train, and appraise them in a direct manner. The competencies at the outer rim of the competency framework cannot be used effectively in human resource activities either due to their low level of abstractness. It is impracticable to sum up all concrete behaviors in a certain job or position and it would make competency lists too elaborate and too cluttered. Therefore, lists of leadership competencies should contain competencies that are neither too abstract nor too concrete behaviors.

### 1.2.3 APPLICATION OF THE COMPETENCY FRAMEWORK

The competency framework offers a theoretical structure to identify valid and applicable competencies within six competency areas. To identify competencies within the competency framework several methods can be used. Methods applied in existing organizations include critical incident interviews with experts, the STAR method, the card sort method, questionnaires, observations, the use of function profiles.

The aim of this paper is to identify leadership competencies for a virtual networked organization that not yet exist in practice. This complicates the identification of competencies. To be able to identify enhanced and additional leadership competencies in future NCO, literature on distanced and distributed leadership in business settings and specific literature on leadership in NCO is studied. Literature on distanced and distributed leadership in business settings is useful due to similarities and parallels between virtual networked organizations in the business world and the military (Fair, Connaughton and Daly, 2004). In the next paragraphs literature on leadership in virtual teams and specific literature on leadership in NCO are discussed, and enhanced and additional competencies for leaders in future NCO are derived within the competency areas of the competency framework.

### 1.3 DISTANCED AND DISTRIBUTED LEADERSHIP IN VIRTUAL TEAMS

One could argue that leaders in virtual, networked teams are confronted with the same problems and challenges as traditional (military) teams and that they must be competent in the same leadership activities as effective leaders from more traditional (military) teams (Fisher & Duncan Fisher, 2001; Kayworth & Leidner, 2002). However, the method for executing leadership activities in future NCO may be different because of the nature of virtual teams (Fisher & Duncan Fisher, 2001) and the complex, dynamic, and insecure environment. In other words, leadership activities are executed at a distance in time and place, in different organizations and different cultures, and with the use of information and communication technologies. Therefore, several leadership activities need to be redefined from traditional to virtual military teams or from face-to-face expression to virtual expression. These leadership activities include for example signaling roles, communicating vision, modeling behavior, influencing opinion, communicating norms, motivating, encouraging input, developing members, mentoring, building trust, providing feedback, monitoring output, evaluating behavior and rewarding behavior (Zigurs, 2003). These leadership activities are roughly related to two leadership functions: team development and performance management (Bell & Kozlowski, 2002). Virtual teams present the potential for real challenges to these two leadership functions (Bell & Kozlowski, 2002; Davis, 2004) because they are limited by the dispersion of team members, the relative team permanence and the extensive use of information and communication technologies.

For virtual teams to work effectively leaders of virtual teams are expected to create structures and routines to compensate and substitute for these two leadership functions and to facilitate distanced leadership. It is also expected that leaders of virtual teams distribute some aspects of the leadership functions (distributed leadership) to the team itself, thereby making it more of a self-managing team. In order to function as a self-managing virtual team, leaders need to implement and facilitate a system in which team members will be able to regulate their own performance as a team (Brown & Gioia, 2002; Bell & Kozlowski, 2002).

A well-proven example of the principle of distanced and distributed leadership in the military is 'mission command'. Mission command is defined as the freedom to make decisions in a situation that one is faced with, without referral, but within set guidelines and in pursuance of a superior's intent (Spacie, 2001). The complexity of operational situations requires initiatives and authority at

lower levels of command. There is some concern with NCO that military superior leadership could draw direct control of the lower levels, because they are technologically able to. Others argue that NCO implies mission command (Baker, 2000) and, more so, operational complexity requires low level initiatives (Spacie, 2001). In either case, it is expected that effective distribution of leadership will remain an essential requirement in military operations.

Several issues are critical to effective distanced and distributed leadership in virtual networked teams, for example providing direction and specific goals, monitoring environmental conditions, updating/revising goals and strategies as environmental contingencies warrant, preventing feelings of isolation among team members, building and maintaining trust among team members, ensuring information equity among all, distanced and proximate, team members, and facilitating collaboration and cohesion among team members (Bell & Kozlowski, 2002; Fair, Connaughton and Daly, 2004). Several of these issues for effective distanced and distributed leadership are discussed here.

### 1.3.1 BUILDING AND MAINTAINING TRUST

#### ***Building and maintaining trust in the leader***

The nature of virtual teams, and the distanced and distributed forms of leadership make it difficult to build and maintain trust in the leader. Trust in the distanced leader is, however, critical for effective performance of virtual teams (Cascio & Shurygailo, 2003; Davis et al., 2003; Zigurs, 2003; Lewis Tyran et al., 2003; Fair, Connaughton and Daly, 2004; Warne et al., 2004; Wigan, 2004). Results of a small study among 13 virtual teams showed that especially role performance trust is important for virtual leaders (Lewis Tyran et al., 2003). Role performance trust concerns demonstrating competency with the tasks and behaviors necessary to accomplish team goals. The study also showed the importance of both ethical integrity trust and affective bond trust. Ethical integrity trust develops when a leader acts for the good of the team even when it involves sacrificing self-interest. In other words, team members believe that the leader will do the right thing in most situations. Affective bond trust relates to a person's ability to form friendly bonds with individuals through the development of long-term relationships.

#### ***Building and maintaining trust among team members***

The nature of virtual teams makes it difficult to build and maintain trust among team members as well. Trust among team members, especially role performance trust, is however critical for effective performance of virtual teams (Cascio & Shurygailo, 2003; Davis et al., 2003; Zigurs, 2003; Lewis Tyran et al., 2003; Fair, Connaughton and Daly, 2004; Warne et al., 2004; Wigan, 2004). Leaders can develop this kind of trust by fostering swift trust (Zacarro et al., 2004). Swift trust occurs when team members begin collaboration with a presumption of trust that is brought in from the complex, dynamic and insecure context. Such trust makes use of category-driven or stereotype information. For example, when an office building is on fire, the vice-president of a firm will trust the firemen, not because of their interpersonal relationship, but because of the knowledge and expectations he has of 'firemen'. Swift trust also develops when team members have clearly defined roles with specified and accurate behavioral expectations, like a doctor or a guard, and when they interact from stabilized social and normative systems, for example a hospital or a prison. Thus, "whereas traditional conceptualizations of trust are based strongly on interpersonal relationships, swift trust de-emphasizes the interpersonal dimensions and is based initially on broad categorical social structures, and later on action" (Jarvenpaa & Leidner, 1999 in Zacarro et al., 2004). "The influence of category-driven and stereotype information and role-based structures at the initial formation of a virtual team, suggests that swift trust proceeds more readily from a strong professional climate, characterized by a rigid code of conduct, high ethical standards, and intensive training to codify and routinize role-based behaviors", as is the case for

the military. In virtual teams with strong professional identities, like military ranks, swift trust can emerge from stable role expectations and subsequent actions that confirm these expectations and therefore strengthen team trust (Zacarro et al., 2004).

Developing trust prior to the beginning of a task can facilitate effective leader emergence in virtual teams and trust among team members. Because initial impressions are formed quickly, it may be worthwhile to have virtual teams meet each other through initial face-to-face meetings before the beginning of a task (Lewis Tyran, et al., 2003; Cascio & Shurygailo, 2003; Zigurs, 2003; Davis, 2004).

### 1.3.2 FACILITATING TEAMBUILDING AND COHESION AMONG TEAM MEMBERS

The nature of virtual teams make teambuilding and cohesion among team members a big challenge for distanced leaders. Team dispersion and the use of information and communication technology may hinder the interactions between team members and therefore also teambuilding and the development of cohesion (Zacarro et al., 2004). Therefore it is important that leaders built a social climate where adequate levels of team unity and cohesion can flourish (Kayworth & Leidner, 2002; Boskamp, 2004), for example by creating a sense of 'social presence' through communication media (Zacarro et al., 2004). They can do this by using vividness and interactivity of communication media (Zigurs, 2003). Other actions a leader can take to facilitate teambuilding and cohesion include "providing team facilitation, clarifying boundary conditions, teaching and modeling good feedback and conflict management skills, employing emphatic listening skills, help the team develop good decision-making processes, and integrating new team members effectively" (Fisher & Duncan Fisher, 2001).

The relative permanence of a virtual team may also hinder teambuilding and cohesion (Zacarro et al., 2004). Because the lifecycle of virtual teams depends on the mission or task, the lifecycle may either be more discrete or more continuous. In a more discrete lifecycle it is expected to be more difficult to perform team development functions like building cohesion. Effective leaders may therefore focus more on critical issues such as quickly establishing working relationships between team members (Bell & Kozlowski, 2002). When a virtual team has a more continuous lifecycle, a leader is expected to focus more on establishing long-term, effective working relationships among team members and on facilitating the development of complex workflow arrangements that are necessitated by the more complex tasks these teams perform (Bell & Kozlowski, 2002).

Team dispersion and the use of information and communication technologies also hinder the management of affective processes in virtual teams that have a more continuous lifecycle. In order to manage affective processes effectively, leaders need to be aware of changes in affect, especially negative affect, and stress. Leaders in traditional teams are aware of changes in affect through observation of non-verbal cues and interpretations of verbal communications, but in virtual teams non-verbal cues like body language, styles of dress and voice inflections are lost (Zigurs, 2003; Zacarro et al., 2004) or replaced by the use of emoticons. Furthermore, physical distance and computer-mediated communications make it easier for team members to hide their affect from the leader and other team members. Moreover, affect in computer-mediated communications is easily misunderstood. Hence, conflict resolution and emotion management are important activities of leaders in virtual teams, especially military teams that operate in highly stressful, insecure and dynamic circumstances (Zacarro et al., 2004).

### 1.3.3 FACILITATING EFFECTIVE COLLABORATION BETWEEN TEAM MEMBERS

Because of the characteristics inherent to virtual teams, especially team dispersion and the use of information and communication technologies, collaboration between team members is complicated. Future military leaders should therefore promote and facilitate collaboration among

team members and delegate leadership activities to team members (Bell & Kozlowski, 2002; Cascio & Shurygailo, 2003; Zaccaro et al., 2004).

In doing so future military leaders are confronted with several paradoxes (Davis, 2004). They must for example impose structure and control to counteract the problems caused by working dispersed, yet they should also impose limited structure and control to make sure the team can regulate their performance effectively. Moreover, needs of the virtual team are more important than needs of individual team members, yet needs of individual team members must also be satisfied by future military leaders (Davis, 2004). It is the job of future military leaders to cope with these paradoxes by maintaining a balance between process and task (Fisher & Duncan Fisher, 2001), flexibility and structure (Zigurs, 2003; Cascio & Shurygailo, 2003), empathy and authority (Kayworth & Leidner, 2002). Future military leaders should see the harmony underlying these paradoxes and use idealized influence and transformational leadership to facilitate effective collaboration (Davis, 2004).

#### 1.3.4 MANAGING CULTURAL DIFFERENCES

When virtual teams become global, they make leadership more challenging and more difficult, because all aspects of leadership are rooted in the national culture of the country, where an organization is located. “Cultural characteristics, especially values, influence preference for leadership styles, acceptance of and ability to work in teams, willingness to accept leadership responsibility, manner of communicating with team members, acceptance and use of communication media and technologies, risk taking, and innovativeness” (Davis, 2004). Leaders may reduce the influence of national culture and cultural differences by developing a strong organization culture that is incorporated within every individual and every team in the organization (Bell & Kozlowski, 2002; Davis, 2004; Warne et al., 2004). Internalization of an organization culture in virtual teams is done through training and knowledge management, through developing appropriate information systems (Davis, 2004), but also through using integrating practices that promote greater understanding and linking between different cultural groups, such as enforcing equality, creating superordinate goals, and promoting frequent personal and face-to-face contact (Armstrong & Cole, 2002).

#### 1.3.5 PROVIDING VISION, DIRECTION, GOALS AND ROLE CLARITY

The characteristics inherent to virtual teams make it essential for leaders to provide direction, goals and role clarity (Davis, 2004). Because members of a virtual team seldom or never meet, they should have a clear understanding of why the team was formed and what it is expected to achieve (Davis, 2004; Boskamp, 2004). Therefore, effective future military leaders probably focus more attention on anticipating problems, providing clear direction and goals to allow team members to regulate their own performance, and enabling team members to adapt to changing environmental conditions (Bell & Kozlowski, 2002). In other words, future military leadership mainly involves facilitation of work processes (Bell & Kozlowski, 2002; Zigurs, 2003).

The relative team permanence and different forms of team dispersion hinder self-regulation of team members. When virtual teams have more discrete lifecycles, it will be more difficult for leaders to facilitate team members regulating their own performance. Therefore, effective leaders of these teams need to provide clear direction and team and individual goals to facilitate an early transition to performance (Bell & Kozlowski, 2002). As team members have different functions and work in different organizations and cultures, effective military leaders will also need to assess how individual and team self-regulation methods translate across these different circumstances. Under these circumstances, future military leaders are expected to consider relevant contextual factors and individual differences across the team, and to tailor their leadership accordingly (Bell & Kozlowski, 2002).

In order for a virtual team to reach goals team members also need clearly defined roles (Davis, 2004). This is especially important considering team members often hold multiple roles within and across different virtual teams. These multiple roles in most cases lead to role ambiguity and role conflict, which does not contribute to effective performance of a virtual team. Effective future military leaders are therefore expected to “clearly specify each team member’s role within the team, design backup plans in case team members are called away to other teams, and clearly specify how much time each individual should commit to the team” (Bell & Kozlowski, 2002). However, role definitions should not be too rigid, but flexible to adapt to changing circumstances (Davis, 2004). The multiple roles of team members may also hinder team development. Therefore, virtual teams leaders are also inclined to specify the individual team member roles and the interdependence between the different team member roles (Bell & Kozlowski, 2002; Kayworth & Leidner, 2002). Specification of individual team member roles and their interdependence becomes even more important with more complex and challenging tasks (Bell & Kozlowski, 2002).

Sometimes leaders provide too much direction, which breeds dependence and resentment among team members (Le Grand et al., 2001; Davis, 2004). Future military leaders who fall into micro management should learn how to assert authority without being overbearing or inflexible (Kayworth & Leidner, 2002) and should encourage the flow of leadership energy throughout the team. To prevent micro management in virtual teams there is a need to re-estate the purpose and value of hierarchy (Cook, 2000). In virtual teams much greater emphasis will be on natural rather than organizational authority (Cook, 2000). Leadership should be distributed to team members and rotate when circumstances change (Zigurs, 2003; Davis, 2004).

#### 1.3.6 ESTABLISHING AND FACILITATING EFFECTIVE COMMUNICATION STRUCTURES AND PROCESSES

Communication is challenging for future military leaders given the nature of virtual teams, especially the extensive use of information and communication technology due to team dispersion (Kayworth & Leidner, 2002). The extent to which a virtual team leader is able to structure and use communication processes to facilitate effective team performance and team development may be critical for virtual teams (Kayworth & Leidner, 2002). In other words, it is expected that future military leaders need to establish a new kind of presence, a *telepresence* to influence team performance and team development in a positive way (Zigurs, 2003). Future military leaders can accomplish this by choosing the right information and communication technology at the right time and by learning how to use vividness and interactivity of communication media to develop a positive telepresence (Bell & Kozlowski, 2002; Lewis Tyran et al., 2003; Cascio & Shurygailo, 2003; Zigurs, 2003; Davis, 2004; Fair, Connaughton and Daly, 2004).

Furthermore, it is expected that effective future military leaders monitor, discuss and adapt the communication structure and processes between the team members to ensure effective team performance and team development (Armstrong & Cole, 2002). Since information and communication technology does not offer the visual and audio cues that exist in face-to-face communication, effective future military leaders are also expected to be skilled at leading people through the written word rather than through vocal or physical presence (Lewis Tyran et al., 2003). Written communication skills, including the ability to write clearly and to motivate others through the written word, are therefore especially critical (Lewis Tyran et al., 2003; Kayworth & Leidner, 2002). Communication has to be planned, programmatic, and consciously built into the routine of future military leaders (Fair, Connaughton and Daly, 2004).

Although most communication will be with the aid of information and communication technologies, there are a few occasions when meeting face-to-face is strongly preferred to communicating electronically. These situations include kick-off meetings, meetings to discuss

goals, and wrap-up or celebration get-togethers. Additionally, when giving performance feedback or attempting to resolve conflict, face-to-face communication is more effective than electronic communication (Fisher & Duncan Fisher, 2001; Zigurs, 2003; Davis, 2004).

### 1.3.7 FACILITATING INFORMATION PROCESSING AND INFORMATION MANAGEMENT

The characteristics inherent to virtual teams, especially geographical and temporal dispersion and the extensive use of information and communication technology for communication purposes, can interfere with team cognitive processes and collective information processing (Zacarro et al., 2004). The availability of an abundance of information may lead to information overload due to the volume of information, time constraints, the assessment and interpretation of information, the variations in the quality of information and the presence of disinformation and conflicting information (Warne et al., 2004). Moreover, geographical and temporal dispersion may increase misunderstandings and differences of meaning.

Because of their central position in the communication network leaders may facilitate the exchange, encoding, and storage of information of team members. Therefore, they must be able to process large amounts of information, identify opportunities and make rapid decisions (Le Grand et al., 2001). Thus, future military leaders are in a position to provide effective information exchange and management, and can facilitate the emergence of shared mental models by providing meaning to acquired information and facilitating discussion of such meaning (Zacarro et al., 2004).

### 1.3.8 CONCLUSION

Leadership in virtual teams is challenging because of the nature of virtual teams, especially the geographical and temporal dispersion, the relative team permanence and the extensive use of information and communication technology. Leaders need to redefine their leadership activities from traditional face-to-face expression to virtual expression, because leadership activities will be executed with different methods (Fisher & Duncan Fisher, 2001) and within the more complex, dynamic and insecure environment of virtual networked teams (NCO) (Brown & Gioia, 2002).

In this paragraph several critical issues and implications of distanced and distributed leadership in virtual military teams are discussed. Although there has been considerable speculation about the implications of virtual teams for effective leadership, little systematic theory has been developed and little empirical research has been done (Yukl, 2002; Bell & Kozlowski, 2002; Zaccaro et al., 2004; Kayworth & Leidner, 2002). More systematic theory and empirical research is needed to establish the implications of virtual teams for leadership, more specifically leadership in NCO.

Although more systematic theory and empirical research is needed, some enhanced and additional leadership competencies besides the leadership competencies in the traditional military organization can already be derived from the literature discussed above. In the next paragraph several enhanced and additional competencies for effective distanced and distributed leaders in a virtual, networked military organization are discussed.

## 1.4 ENHANCED AND ADDITIONAL LEADER COMPETENCIES IN NCO

The critical issues and challenges of leadership in a virtual, networked organization indicate that some enhanced and additional leadership competencies are needed for effective distanced and distributed leadership in future NCO. These enhanced and additional leadership competencies mainly concern the execution of leadership activities in a virtual, networked organization (Fisher & Duncan Fisher, 2001) and coping with the more complex, dynamic and insecure environment of virtual, networked teams (Brown & Gioia, 2002) in future NCO. Typical characteristics of the

NCO environment are increased information flows with multiple dimensions, larger area's of deployment, reduced freedom of movement and sudden changes of operational conditions. In this paragraph enhanced and additional competencies for effective distanced and distributed leadership in future NCO are derived from literature and placed within the competency areas of the competency framework presented earlier.

#### 1.4.1 COGNITIVE INTELLIGENCE COMPETENCIES

The environment of NCO and the extensive use of information and communication technology will require better-developed cognitive intelligence competencies (Baker, 2000; Forgues, 2001). Future military leaders will need to process large amounts of information relevant to a decision, test theories, concepts and ideas against that information and present that information effectively. But they also need to facilitate the exchange, encoding and storage of information (Le Grand et al., 2001). Hence, they need to monitor and structure information and communication processes. Future military leaders will therefore mainly be knowledge workers (MacNulty, 2003).

MacNulty (2003) makes a distinction between two types of Knowledge Workers that will be required to operate effectively in future warfare, especially NCO: the knowledge warrior and the knowledge manager. **Knowledge Warriors** are leaders and decision-makers at whatever levels they are operating. They have to understand and operate at the geo-strategic and the military strategic levels. They are comfortable operating in conditions of complexity, uncertainty, ambiguity and risk and are able to think quickly and make confident and timely decisions without knowing all the facts. Therefore, they must be able to improvise and use intuitive and innovative decision-making. **Knowledge Managers** support the knowledge warrior. Knowledge managers operate highly capable at the operational and tactical levels. They turn information into knowledge and provide their information to the decision-makers, the knowledge warriors.

Critical characteristics of knowledge workers that are required to greater degree in NCO than in previous forms of warfare are: ability to see and understand the big picture, ability to multitask, ability to tell stories, ability to improvise, ability to conceptualize, ability to synthesize (MacNulty, 2003; Warne et al., 2004). Leeds and others (2003) add the following characteristics to this list: possessing well-developed powers of abstraction, capable of heterogeneous out-of-the-box thinking and able to exploit expertise or tacit knowledge.

The extensive use of information technology and the network centrality of future NCO has the potential to overwhelm future military leaders with too much information; information overload (Baker, 2000; Forgues, 2001). The ability to quickly sort through the unimportant will therefore be a crucial skill to prevent information overload (Forgues, 2001). Future military leaders must also be able to visualize a complex and multidimensional battlespace to form an adequate awareness of the situation. Because future operations will be more complex, dynamic, and insecure, future military must also be capable of adapting their thinking and acting very quickly. Hence, innovative and creative 'out of the box' thinking instead of conservative thinking is important in future NCO. Furthermore, decisions have to be made more quickly and decisively, and are executed over greater distances and in decreasing timeframes. Future military leaders need to strike a balance between speed and making a good decision in complex and dynamic political and social circumstances (Baker, 2000; Le Grand et al., 2001).

To cope with the complex, dynamic and insecure environment of future NCO it is expected that effective military leaders require better boundary-spanning skills and sense-making skills than leaders of traditional teams (Zacarro et al., 2004; Warne et al., 2004). Better developed boundary skills help future military leaders scan the environment of the virtual team more effectively and facilitate greater awareness of circumstances in the separated environments of each team member (Zacarro et al., 2004). Better developed sense-making skills help military leaders understand the

various influences operating on the virtual team across its dispersed environments (Zacarro et al., 2004). The different cognitive intelligence competencies are presented in the table below.

<b>Cognitive Intelligence Competencies</b>
Process information quickly
Facilitate information processing
Monitor information and communication processes
Structure information and communication processes
Multitask
Tell stories/myths to communicate vision
Improvise
Conceptualize
Synthesize
Abstract
Exploit expertise or tacit knowledge.
Cope with (too) much information
Visualize the NCO environment
Think creatively and 'out of the box'
Adapt thinking to changing circumstances
Be able to make quick decisions
Be able to balance speed and qualitative decision-making
Sense-making skills
Boundary-spanning skills

Table 1: Enhanced and additional cognitive intelligence competencies in future NCO

#### 1.4.2 EMOTIONAL INTELLIGENCE COMPETENCIES

In most cases leadership in future NCO will be executed with the use of information and communication technology and within the more complex, dynamic and insecure environment of virtual networked teams. To lead effectively in future NCO military leaders require enhanced and additional emotional intelligence competencies (Warne et al, 2004), especially in the area of communication.

##### ***Electronic communication***

Given the opportunities of information and communication technology and the potential risks of moving around in the operations area leadership activities will be executed increasingly via electronic means. Therefore, future military leaders need to build some kind of social presence from afar, a telepresence (Bell & Kozlowski, 2002; Lewis Tyran et al., 2003; Cascio & Shurygailo, 2003; Zigurs, 2003; Davis, 2004; Fair, Connaughton and Daly, 2004). To accomplish a positive telepresence, future military leaders should be able to consider what electronic communication media to use at a given time and situation and what positive and negative effects are inherent to the use of these different electronic communication media.

However, choosing the right electronic communication media at the right time and in the right situation and assessing the effects of different electronic communication media is not enough. Future military leaders must also be skilled at leading through the written word rather than through vocal or physical presence (Lewis Tyran et al., 2003). Written communication skills are

critical, including the ability to write clearly and to execute leadership activities like giving feedback, motivating, convincing, mentoring through the written word (Lewis Tyran et al., 2003; Kayworth & Leidner, 2002). In their electronic communication with team members future military leaders need to be empathetic. They have to hold in mind the possible negative effects of electronic communication, calculate possible misinterpretations of written messages and be able to prevent and correct misinterpretations of written messages. Hence, future military leaders need to be empathetic electronic communicators. That way they are also able to discuss and adapt the communication structure and processes within the virtual team to ensure effective team performance and team development (Armstrong & Cole, 2002).

Although most leadership activities will be executed through electronic communication, there are times when meeting face-to-face is strongly preferred to communicating electronically, for example at the beginning of a mission (Fisher & Duncan Fisher, 2001; Zigurs, 2003; Davis, 2004). Future military leaders have to learn and estimate when leadership activities should be executed through face-to-face communication instead of electronic communication. Hence, they have to estimate when face-to-face communication is more effective for team performance and team development than electronic communication.

There are several leadership activities that are extremely difficult to execute through the written word and that require enhanced and additional emotional intelligence competencies. The emotional intelligence competencies required for the issues for effective distanced and distributed leadership discussed earlier in this paper are discussed below.

### ***Building and maintaining trust***

Future military leaders need to be able to build trust and be trustworthy (MacNulty, 2003). This is one of the most difficult leadership activities to execute through the written word. Future military leaders can use different activities to build and maintain role performance, ethical integrity and affective bond trust. Leading by example, educating and training about mission command, and communicating frequently in an open and inspirational manner, both vertically and laterally within the command structure, are the best tools a future military leader has to create and maintain trust and unity amongst his forces (Baker, 2000; Fisher & Duncan Fisher, 2001; Warne et al., 2004). Several other trust-building activities include: face-to-face meetings at the beginning of a task, giving trust to others, being honest and doing what you say you will do, establishing strong business ethics within the team, ensuring that one's interactions with the team are consistent and predictable, thoughtfully setting the initial tone for interaction within the team, being responsive to team member requests or inquiries, monitoring language and terminology, maintaining confidences, and creating opportunities for social interaction among team members (Fisher & Duncan Fisher, 2001; Lewis Tyran, et al., 2003; Cascio & Shurygailo, 2003; Zigurs, 2003; Davis, 2004). To execute these activities effectively through electronic communication media future military leaders need to be aware of their own attitude, influence and reactions, but they also need to be aware of the effects and consequences of their reactions on others. They need to be able to estimate the needs and feelings of team members through electronic communication and respond to them consciously and effectively.

### ***Facilitating teambuilding and cohesion and managing cultural differences***

Another leadership activity that is difficult to execute through the written word is facilitating teambuilding and cohesion. Future military leaders need to be able to build and maintain social relations and an effective social climate for team development and team performance (Warne et al., 2004; Kayworth & Leidner, 2002). They need to estimate what task oriented and what team oriented activities they should execute to build and maintain an effective social climate. In building a social climate they need to hold the expected lifecycle of a virtual team in mind when estimating what working relationships among team members to establish for effective team

performance (Bell & Kozlowski, 2002). Hence, they need to estimate the need for team development versus task performance.

Because future military leaders in NCO cannot estimate changes in affect through observation of non-verbal cues and interpretations of verbal communications (Zacarro et al., 2004), they need to be able to estimate changes in affect through electronic communication. They also need to be aware of the possible misinterpretations and the possibilities of concealing affect in electronic communication, especially when team members have different cultural backgrounds. To prevent and resolve misinterpretations and the concealing of affect future military leaders need to have good conflict resolution and emotion management skills, especially in military teams that operate in highly stressful, insecure and dynamic circumstances (Zacarro et al., 2004). They also need understanding and awareness of other cultures (MacNulty, 2003), be able to reduce the influence of national culture and cultural differences by developing a strong organization culture (Bell & Kozlowski, 2002; Davis, 2004; Warne et al., 2004), and be able to react in an effective manner to different customs, standard and values.

#### ***Providing vision, direction, goals and role clarity***

To work effectively in the complex, dynamic and insecure environment of NCO, future military leaders distribute leadership activities to the team itself (Zigurs, 2003; Davis, 2004). Effective military leaders in future NCO need to be able to facilitate the team by providing a clear vision, direction and clear goals. Furthermore, future military leaders need to prevent and cope with role ambiguity and role conflict. Therefore, they need to specify team member roles and their interdependence, especially when missions become increasingly complex (Bell & Kozlowski, 2002; Kayworth & Leidner, 2002).

#### ***Facilitating effective collaboration***

Promoting and facilitating collaboration between team members and between team members and other groups, and delegating leadership activities to team members is difficult to do in a complex, dynamic and insecure environment, in which leaders are confronted with several paradoxes (Davis, 2004). The complex, dynamic and insecure nature of future operations requires an increased risk tolerance and resilience to cope with the sometimes opposite military and political goals, and moral dilemmas. To effectively cope with opposite goals and moral dilemmas, military leaders need to understand the society they are operating in, and be aware of social and political issues (Baker, 2000). They need to be able to negotiate, to deal with complexity, ambiguity and uncertainty (MacNulty, 2003) and they need to maintain a balance between process and task (Fisher & Duncan Fisher, 2001), flexibility and structure (Zigurs, 2003; Cascio & Shurygailo, 2003), and empathy and authority (Kayworth & Leidner, 2002). Military leaders should see the harmony underlying these paradoxes and use transformational leadership to facilitate effective collaboration (Davis, 2004) instead of micro management.

In the table below the different emotional intelligence competencies are presented.

<b>Emotional Intelligence Competencies</b>
Estimate what (electronic) communication media to use in different times and circumstances
Consider the different effects of electronic communication media
Write emphatically
Discuss communication structures and processes
Adapt communication structures and processes
Stimulate and facilitate social interaction through electronic communication media
Be aware of own attitude, influence and reactions
Be aware of effects and consequences of own attitude, influence and reactions
Consider needs and feelings of team members through electronic communication
Build and maintain a social climate through electronic communication
Estimate the lifecycle of a virtual team and the need for team development/task performance
Assess changes in affect through electronic communication
Be able to resolute conflicts through (electronic) communication
Be able to manage emotions through (electronic) communication
Be aware of and understand cultural differences
Be aware of and understand social and political issues
React effectively to the customs, standards and values of other cultures
Be able to develop a new organizational or team culture
Communicate a clear vision
Provide direction and clear goals
Cope with role ambiguity and role conflict
Be able to facilitate instead of orchestrate
Be able to delegate
Be able to balance process and task
Be able to balance flexibility and structure
Be able to balance empathy and authority
Be able to cope with paradoxes in a complex, ambiguous, dynamic and insecure environment
Be able to cope with opposite military and political goals and moral dilemmas

Table 2: Enhanced and additional emotional intelligence competencies in future NCO

### 1.4.3 INTUITIVE COMPETENCIES

Because of the characteristics of virtual military teams in future NCO, especially team dispersion, the use of information and communication technology and the relative team permanence, intuitive competencies emerge as a key enabler (Baker, 2000; Forgues, 2001; Warne et al., 2004). Intuitive competencies can give military leaders an important advantage in the execution of leadership activities and in understanding and coping with the more complex, ambiguous, dynamic and insecure NCO environment and the people, teams and groups in the virtual network (Baker, 2000; Warne et al., 2004). Intuitive competencies concern, for example sensing the atmosphere and ambience around yourself, sensing feelings and needs of individual team members, sensing group

dynamics within own team and other teams, sensing group processes within own team and between own team and other teams, sensing political and diplomatic relations, sensing cultural differences and sensing positions on social, economical and political issues.

These intuitive competencies may facilitate effective empathic oral and written communications, emotion management and conflict management that in turn facilitate the building and maintaining of trust, teambuilding and team cohesion, the management of affective processes, collaboration between team members and the management of cultural differences. In other words, better-developed intuitive competencies help future military leaders cope with the challenges presented by the more complex, dynamic and insecure environment of virtual networked teams. The enhanced and additional intuitive competencies are presented in the table below.

<b>Intuitive competencies</b>
Sense the atmosphere and ambience around yourself
Sense feelings and needs of individual team members
Sense group dynamics within own team and other teams
Sense group processes within own team and between own team and other teams
Sense political and diplomatic relations
Sense cultural differences
Sense positions on social, economical and political issues

Table 3: Enhanced and additional intuitive competencies in future NCO

#### 1.4.4 INSTINCTIVE COMPETENCIES

Leaders of virtual military teams require enhanced instinctive competencies to cope with the more complex, ambiguous, dynamic and insecure environment of future NCO. A critical instinctive competency in future NCO is the desire for professional and personal growth (MacNulty, 2003). Professional and personal growth are indicative for several other critical instinctive competencies in the environment of future NCO. These competencies are willingness to take risks, willingness to use intuition, willingness to take the initiative, willingness to innovate, willingness to learn continuously and act and learn new things with curiosity (MacNulty, 2003; Leeds and others, 2003). Other instinctive competencies important to cope to deal with the environment of future NCO are willingness to adapt to rapid changing circumstances and a drive for complex, ambiguous, dynamic and insecure environments (Baker, 2000; Steele & Walters, 2001; Warne et al., 2004). The enhanced and additional instinctive competencies are presented in the table below.

<b>Instinctive competencies</b>
Have a desire for professional and personal growth
Be willing to take risks
Be willing to use intuition
Be willing to take the initiative
Be willing to innovate
Be willing to learn continuously
Act and learn with curiosity
Be willing to adapt rapidly
Have a drive for complex, ambiguous, dynamic and insecure environments

Table 4: Enhanced and additional instinctive competencies in future NCO

#### 1.4.5 PHYSICAL COMPETENCIES

It is expected that the more complex, ambiguous, dynamic and insecure environment of future NCO has little direct impact on physical competencies. NCO does not require enhanced or additional physical competencies (Baker, 2000; Forgues, 2001). The increasing complexity and insecurity of future NCO will however influence the psychological and physiological health of leaders. Sufficient rest and sleep, quiet thought and reflection are essential to cope with the complex, ambiguous, dynamic and insecure environment of future NCO (Baker, 2000).

#### 1.4.6 PSYCHOMOTOR COMPETENCIES

The nature of military virtual teams in future NCO, especially the extensive use of information and communication technology, requires well-developed psychomotor skills in the area of information and communication technology. Future military leaders more than traditional military leaders need to be self-sufficient with information and communication technology (Leeds and others, 2003). This implies that they need a general computer literacy, like keyboarding skills (Warne et al., 2004). They also need to understand the technology infrastructure and know how to use software tools to enhance team performance and team development (Cascio & Shurygailo, 2003). Furthermore, they need to be able to work with several communication media to form a positive social telepresence. The technology must not form an obstacle for executing leadership activities (Lewis Tyran et al., 2003).

Since information and communication technology does not always offer the visual and audio cues that exist in face-to-face communication, future military leaders also need to have good writing skills in English and maybe even in one or two other languages, for example German or Spanish. Writing skills are important if leaders have to lead their teams through the written word rather than through vocal or physical presence (Lewis Tyran et al., 2003). The enhanced and additional competencies are presented in the table below.

<b>Psychomotor competencies</b>
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Information and Communication Technology (ICT) skills
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Writing skills (grammar, spelling)
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Table 5: Enhanced and additional psychomotor competencies in future NCO

### 1.5 CONCLUSION

The continuing developments in information and communication technology transform traditional military operations in more network centric operations (NCO). Implementation of NCO involves a transformation of almost all aspects of the military organization, from technology to organization and leadership. Networking the military force enables virtual collaboration of individuals that are geographically, temporally and/or hierarchically dispersed. Virtual, ad hoc collaboration in a network centric environment require effective ‘distanced’ and ‘distributed’ forms of military leadership. Future commanders need enhanced and additional competencies to be effective distanced and distributed military leaders in the more complex, dynamic and insecure environment of future NCO.

The literature search on distanced and distributed leadership in business settings and on leadership in future NCO, presented in this paper, has identified some critical issues and challenges of military leaders in future NCO. Future military leaders need to redefine their leadership activities from traditional face-to-face expression to virtual expression, because leadership activities will be executed with different and within the more complex, dynamic and insecure environment of virtual networked teams (NCO). The critical issues and challenges of

military leadership in a virtual, networked organization indicate that some enhanced and additional leadership competencies are needed for effective distanced and distributed leadership in future NCO.

Investigation of the critical issues and challenges of future military leadership has led to an initial exploration of enhanced and additional leadership competencies of commanders in future NCO. These enhanced and additional leadership competencies were identified within the six competency areas of a conceptual integrative competency framework. Because leadership activities are executed from a distance and distributed with the use of information and communication technology enhanced and additional leadership competencies mainly concern cognitive and emotional intelligence. However, several enhanced intuitive and instinctive competencies can also compensate for the absence of face-to-face communication and non-verbal cues.

It is expected that in the future the military needs to recruit, select and train commanders with enhanced and additional leadership competencies to effectively cope with the critical issues of distanced and distributed leadership in virtual networked teams and to operate effectively in future NCO. This study offers an initial exploration of leadership and leadership competencies needed in future NCO. However, more systematic theory and empirical research is needed to establish the exact implications of NCO for leadership and leadership competencies. Current and future research on this topic at TNO is therefore aimed at the development and empirical testing of systematic theory on distanced and distributed command in future NCO.

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