C2 JOURNAL

VOLUME 4, NUMBER 1, 2010

SPECIAL ISSUE

Agility and Interoperability for 21st Century Command and Control

GUEST EDITOR

Sandeep Mulgund MITRE

> Implications of Operationalizing a Comprehensive Approach: Defining What Interagency Interoperability Really Means

> > Andrew P. Williams



THE INTERNATIONAL C2 JOURNAL

David S. Alberts, Chairman of the Editorial Board, OASD-NII, CCRP

The Editorial Board

Berndt Brehmer (SWE), Swedish National Defence College
Reiner Huber (GER), Universitaet der Bundeswehr Muenchen
Viggo Lemche (DEN), Danish Defence Acquisition and Logistics Organization
James Moffat (UK), Defence Science and Technology Laboratory (DSTL)
Sandeep Mulgund (USA), The MITRE Corporation
Mark Nissen (USA), Naval Postgraduate School
Ross Pigeau (CAN), Defence Research and Development Canada (DRDC)
Mink Spaans (NED), TNO Defence, Security and Safety
Andreas Tolk (USA), Old Dominion University

About the Journal

The International C2 Journal was created in 2006 at the urging of an international group of command and control professionals including individuals from academia, industry, government, and the military. The Command and Control Research Program (CCRP, of the U.S. Office of the Assistant Secretary of Defense for Networks and Information Integration, or OASD-NII) responded to this need by bringing together interested professionals to shape the purpose and guide the execution of such a journal. Today, the Journal is overseen by an Editorial Board comprising representatives from many nations.

Opinions, conclusions, and recommendations expressed or implied within are solely those of the authors. They do not necessarily represent the views of the Department of Defense, or any other U.S. Government agency.

Rights and Permissions: All articles published in the International C2 Journal remain the intellectual property of the authors and may not be distributed or sold without the express written consent of the authors.

For more information

Visit us online at: www.dodccrp.org Contact our staff at: publications@dodccrp.org



Implications of Operationalizing a Comprehensive Approach: Defining What Interagency Interoperability Really Means

Andrew P. Williams (NATO HQ Supreme Allied Commander Transformation, NATO)

The views expressed in this article are the views of the author and do not necessarily represent the views of NATO or any other organization.

Abstract

Recent experiences in the Balkans, Iraq and Afghanistan have demonstrated that these complex challenges cannot be resolved exclusively by military intervention, and are of such scale that no single agency, government or international organization can manage them alone. A broad, international consensus has emerged that recognizes the importance of coherent and simultaneous application of military, political, economic and civil instruments—known as *comprehensive approach*—to resolve crisis situations. However, efforts to implement comprehensive approaches have been fraught with political and administrative challenges, and have suffered due to conceptual ambiguity in the understanding of collective endeavors.

By analyzing research on command and control, organizational science and public administration, a multi-dimensional model is proposed that can assist military, governmental and non-governmental agency leaders in understanding the practical details of interagency interoperability when working in collective endeavors. The NATO Network Enabled Capability interaction maturity model is extended, in order to understand the actual implications of increasing levels of cooperation on organizational structures and operational practices, in cross-organizational collective efforts. The implications of increasing interagency interoperability are thus revealed.

Introduction

The experiences of multinational forces in recent operations in the Balkans and Afghanistan have demonstrated that these complex challenges cannot be resolved exclusively by military intervention and are often of such scale that no single agency, government or international organization can manage them alone (Friis and Jarmyr 2008). The outputs of the NATO summits at Riga (NATO 2006a) and Bucharest (NATO 2008a), demonstrate that a consensus has emerged recognizing the importance of coherent and simultaneous application of political, civil, economic and military instruments, in the efforts to resolve crisis situations. This overall effort is understood by the term, *comprehensive approach*¹ and is focused on achieving higher levels of interoperability in a number of dimensions between national, international and non-governmental actors. Recent experiences, however, indicate that the specification, development and implementation of comprehensive approaches in multinational alliances and nations is fraught with difficulties.

There are significant political challenges in improving interagency interoperability: national perspectives may differ irreconcilably; national and organizational values and priorities fall across a broad spectrum (Friis and Jarmyr 2008; Lipson 2007); military leaders may be reluctant to concede authority and budgets to non-military government functions (Egeberg and Kjølberg 2001); questions

^{1.} In some literature, a specific distinction in meaning is made between 'a' comprehensive approach and 'the' comprehensive approach. In this article, there is no distinction made and the indefinite article and definite articles are used in whatever grammatical manner is appropriate. However, it is always understood that NATO will always be a supporting partner in a comprehensive approach; it will not own the initiative.

arise about the reduction of sovereignty and globalization of security duties (Baharvar 2001; Blatter 2001; Chatham House 2005; Flanagan and Schear 2008); and international non-governmental agencies face challenges of independence (Cornish 2008; Pugh 2001; Stockton 2002).

Even as such fundamental syncretism is breached in the political domain, significant challenges in implementation will be encountered: forging comprehensive working relationships with a variety of non-governmental actors represents a formidable administrative task of unparalleled complexity; and traditional principles of bureaucratic systems are subtly altered as organizational boundaries are blurred and questions of legal-rational authority, responsibility and accountability arise (Morris et al. 2007). Furthermore, while the rhetoric of a comprehensive approach is conceptually appealing and commensurate with current, global *rights-based* sentiment on the reduction of military hegemony (Nelson and Dorsey 2007), there is scant empirical evidence on the overall cost-benefit.

Notwithstanding these significant political and administrative challenges, there are aspects of the comprehensive approach enigma that are independent of political considerations and invariant of administrative configurations. Both the political and administrative aspects are reliant on some fundamental principles that have been little developed to date—underlying causes behind the problem of conceptual ambiguity.

The Problem of Conceptual Ambiguity

Cross-organizational cooperation has been extensively studied in the defense, public administration, and organizational science literature. Many theoretical studies have pushed the boundaries of understanding of collective endeavors between government and non-governmental entities, with normative models detailing the required factors for success and the various dimensions of cooperation from initial conditions, processes, to outcomes (see, for example, Alberts 2007; Alberts and Hayes 2006, 2007; Bryson et al. 2006; Mattesich et al. 2001; Thomson 2001; Thomson and Perry 2006). Furthermore, many case studies provide practical examples and evidence of collective endeavors in action (see, for example, Agranoff and McGuire 2003; Chisholm 1992; Morris et al. 2007; Simo and Bies 2007). However, there have been few studies that give succinct practical guidance to military and civilian leaders on the nature of cooperative governance. In the literature reviewed I encountered significantly different interpretations and definitions in the concept of collective endeavors-the terms collaboration, cooperation, inter-organizational relationships, networks, and joint ventures being used interchangeably in many cases. The objectives of this article are to provide military and civilian leaders with a practical guide to understand the actual physical and organizational implications of increasing interagency interoperability in collective endeavors and to provide a standardized typology of cooperation. These are important for two reasons.

First, it is critically important for the development of a discipline of study to have a common typology. Although it is well accepted that there is a scale of cooperation which varies in level of organizational integration and formality (Alberts and Hayes 2006, 2007; Diehl 2005; Huxham and Vangen 2005; McNamara 2008; Thomson and Perry 2006), the lack of common standards results in disparities and ambiguities being concealed by inconsistent and interchangeable terminology, and prevents theory building (Imperial 2005). In order to understand the detailed nature of cooperation and its application in various situations, to provide conceptual clarity, and to facilitate a deeper understanding of the literature, a consistent set of definitions is needed. A consistent typology allows creation of shared meanings, which, in the words of political scientist Deborah Stone, "motivate people to action and meld individual striving into collective action," (Stone 2002, 11).

Second, of further importance is the need to guide leadership in collective endeavors. Although the literature has many exemplary case studies, few are aimed at facilitating leaders understanding of actual implications of cooperative endeavors—the general focus is towards research, as opposed to practitioner knowledge. As leaders in both government and non-government domains must be prepared to cooperate in order to achieve success (Bryson et al. 2006), a major part of this preparation must involve understanding the detailed, practical implications on resources, organizational structure, decision-making and accountability, to name a few.

This article has four sections of which the first three are *operationalizing principles* that key leadership should consider before entering into any collective endeavor. First, I propose a cooperation typology on which the study will be based. Second, I describe a framework of key dimensions that are relevant to practitioners involved in leading or participating in collective endeavors. Third, I develop the implications of increasing interagency interoperability, and review the literature. I conclude with suggestions for using the model and identify potential future research.

Operationalizing Principle 1: Develop a Cooperation Typology

Several terms that describe various modalities of *working together* appear frequently in the literature, the most common being: *coopera-tion, coordination,* and *collaboration.* Often, terms such as *network, joint* arrangement, multi-organizational, and partnership are used in specific contexts. I will focus primarily on the cooperation / coordination / collaboration terminology, as these are the most commonly used and the most ambiguous. Many subtle and varied meanings have been attached to each of these terms outside their standard dictionary definitions, however, one can discern that a scale of *working together* is generally implied, which can form the basis of the cooperation typology (NATO 2008b).

This scale was first articulated in the NATO Network Enabled Capability (NNEC) concept development (NATO 2006b).² The scale

defines a level of maturity for NNEC C2 capabilities—that is, the higher up the scale, the more mature the capabilities. The lowest level of maturity is *conflicted*, which represents the historical state of affairs where individual services or organizations had very little C2 interaction. This is followed by *de-conflicted*, *coordinated*, *collaborative*, and finally *agile*, in which C2 resources are completely shared, organizational boundaries are essentially virtual, and lines of authority and command are completely transformed into a currently hypothetical, *agile* state. This work was further elaborated in *Planning: Complex Endeavors* (Alberts and Hayes 2007) and related in a general sense to planning between separate organizations.

This article seeks to further extend the maturity model into an *Interaction Magnitude*³ *Model* (IMM) that defines the implications of moving from one level of interaction to the next on a wide variety of organizational features that may be encountered in operationalizing a comprehensive approach. By analyzing the practical implica-

3. The term *maturity* suggests both elements of quality and superiority; the latter implying that moving up the scale of interaction is preferable. I maintain that this is an incorrect assumption, indeed, there are many studies to suggest that operating at the highest level is not appropriate for all situations (see for example: Chisholm 1992; Mattesich et al. 2001). Alberts (2007) also acknowledges this concern. Although the term *magnitude* can be misconstrued to imply quantity, this is not the intent. Interaction magnitude is meant to convey that the magnitude of the impact on organizations will be greater at higher levels of interaction. This discussion reflects a typical problem in operationalization of concepts: single-word terms such as *magnitude* or *maturity* when applied in this context are rarely adequate for capturing the complexities and subtleties inherent in such discussions. I hope Table 1 is a suitable operationalization that adds real meaning to these ambiguously applied words. I thank an anonymous reviewer for pointing out this potential confusion.

^{2.} A fact not widely appreciated in the defense community is that work on network structures, organizational collaboration and scales of collaboration has been studied in academia since the early 70's, although the interaction maturity levels had not been previously described.

tions for organizations operating at each level and moving beyond conceptual rhetoric, the true meaning of *interagency interoperability* can be ascertained. Before developing the typology, however, there are several assumptions that must be noted.

First, in a general sense, the notion of cooperation pertains to the idea of working together for a mutually beneficial purpose. Although there will certainly be negative aspects involved, I assume that one of reasons participants are cooperating is that the net benefits to both the participants and recipients of the endeavor, outweigh the costs. Second, I have placed the focus on leadership and suggest that the focal point or integrator of the collective endeavor is governmental or military in nature (Goldsmith and Eggers 2004). Although this is an implicit assumption in all that follows, the model is sufficiently general to apply to an IO/NGO-led cooperative endeavor with government as a willing participant. Third, as the unit of analysis of the model is at the organizational level, I am concerned only with cooperation between organizations, not individuals, although this may occur as part of a larger framework of cooperation. Fourth, I am not concerned with intra-organizational cooperation such as interactions between different departments of the same agency, for example; although the typology described in this article will have some applicability to this case (Huxham and Vangen 2005). Finally, I assume interdependence, which is: "...a condition where two (or more) organizations require each other, are dependent each upon the other" (Chisholm 1992, 42). The implication of interdependence is that: "the behavior of a particular organization...cannot be understood in isolation: its behavior is affected by and in turn affects the behaviors of those involved in the relationship" (42). Collective endeavors are therefore borne out of a realization that an organization cannot achieve all its goals without cooperation with other organizations operating in the same domain.

Cooperating organizations can interact through a variety of different mechanisms. Formal structures can be designed with rules and procedures (Bryson et al. 2006), or interaction may emerge through informal networks (Goldsmith and Eggers 2004). Interaction may range from planned and mandated contact at the individual level, to full organizational integration and exchange of resources and authority. The level of interaction forms the vertical *axis* on the cooperation typology displayed fully in Table 1, which I denote *interaction magnitude*. This implies that the further an organization ascends up the scale of interaction, the more complex, institutionalized, and internalized the cross-organizational interactions will be.

As originally conceived in the NNEC taxonomy, I may now create a *scale of cooperation* that reflects different levels of interaction magnitude (see Figure 1). This presents a first step in creating definitions for these frequently encountered terms, however, this model will be greatly expanded compared to the original NNEC model, as demonstrated in Table 1. The lowest level of interaction magnitude is *conflicted*, which represents a baseline condition of no or very little cooperation. The second level is *de-conflicted*, followed by *coordinated*, then *collaborative*. Although the NATO and C2 models continue to a final, yet still hypothetical stage of *transformed* interaction, the majority of public administration literature does not go further, and for the purposes of this article, the required understanding can be achieved by stopping at *collaborative*. The extra level introduces a level of granularity that is unnecessary and that creates confusion over the differences between levels.

I reserve *cooperation* as an all-encompassing term that describes a continuum of the four components, depending on the various implications of that level of interaction magnitude. The temptation must be resisted at this stage to present definitions for these terms which would be contrary to the message of this article; indeed, many excellent definitions have been developed by scholars in the cooperation literature. Instead, I intend to allow the definition to emerge from the full analysis of the cooperation typology presented in the next section and the full IMM in Table 1. The key point is that as collective endeavors are extremely complex phenomena; the true implications of what is meant by a simple term such as *collaboration* cannot be sufficiently described in a single sentence.

The final component of the cooperation typology is the assertion that as organizations proceed up the scale of interaction magnitude they necessarily require increasing *policy coherence* in order to work together at that level. Policy coherence is a term widely used in the international development field, and institutions such as Organization for Economic Cooperation and Development (OECD) have standardized its use in the development community (Picciotto 2005). The OECD's Development Assistance Committee defines policy coherence as: "...mutually reinforcing policies across government departments and agencies creating synergies towards achieving the defined objective" (OECD 2003, 2).



Figure 1. The Interaction Magnitude Model (IMM)

The concept of policy coherence allows further granularity in defining terms in the cooperation typology, as for high levels of interaction magnitude, organizations require mutually supporting policies and plans, and in many cases must adopt the same policies. This has implications on organizational structures, plans, and resources. Practitioners must be aware of the consequences, especially in politically sensitive policy areas. Generally, I assume that policy coherence must be proportional to interaction magnitude; however, it may be possible for organizations at the lower levels to have complimentary policies, but not actually be engaging in any coordination or collaboration. Conversely, it is not feasible for organizations operating at the level of collaboration to have inconsistent policies. Collective endeavors can be viewed as a form of policy implementation, providing an important bridge to the policy sciences scholarship. Significant evidence from this literature confirms the need for policy coherence in complex implementation projects (see for example, Boston 1992; Goggin et al. 1990; Imperial 2005; May et al. 2005, 2006; Mazmanian and Sabatier 1983; Pressman and Wildavsky 1984).

Other recent thinking on comprehensive approaches has defined two levels of potential cooperation: an *integrated* approach and *coordinated* approach (De Coning 2007; Friis and Jarmry 2008). In the integrated approach, "the aim is to develop systems, processes and structures that will ensure that all the different dimensions are integrated into one holistic effort" (Friis and Jarmry 2008, 14). The coordinated approach does not seek formalized integration of systems and processes, but instead "favors utilizing the diversity of the actors as a way to manage the complexity, while pursuing coherence through bringing the various dimensions together at the country level" (Friis and Jarmry 2008, 15).

Although these approaches can be explained under the framework developed in this paper, they lead to an important point. A comprehensive approach does not require that all actors are equally engaged at the same level of cooperation (Friis and Jarmry 2008). What is important, however, is that participants understand the *implications* on their own organizational structure, resources and independence from operating at different levels of cooperation. It may be that some organizations choose to integrate their systems and processes by collaboration, while others may seek only to de-conflict at limited levels.

Operationalizing Principle 2: Understand Organizational⁴ Features Affected

The literature reveals that collective endeavors can be characterized by a large number of dimensions; however, as the purpose of this article is to understand *practical*, *'real' implications of increasing levels of cooperation*, I have identified several dimensions that occur repeatedly and that are particularly relevant to key organizational characteristics that military and civilian leaders would wish to understand prior to entering into any cooperative arrangement. Little of the literature on the comprehensive approach has covered the issue of the required changes in organizational structures and features that are necessary to achieve various levels of cooperation with other organizations. These are the units of analysis that will now be examined and which form the horizontal axis of the IMM, described fully in Table 1. The IMM describes in detail the implications on each of these variables for each level of interaction magnitude.

- a. Organizational structure the implications on various types of organizational structural features are considered: the chain of command, hierarchical divisions and level of centralization.
- b. *Communications* the type, structure, and protocol of organizations' communications methods.
- c. *Information sharing* regulations governing and constraining information usage, and processes of organizations' information sharing mechanisms.

^{4.} There are many different theories that define what an organization is and how it should function. In this discussion, no specific theories are assumed and complete generality is the goal; however, given that the majority of organizations considered in a comprehensive approach are governmental in origin, some bias towards traditional, legal-rational, hierarchical models may be unavoidable.

- d. *Decision making and operating procedures* critical to how an organization functions, these offer many constraints, or freedoms, on the level of cooperation possible.
- e. *Authority and accountability* the mechanisms that permit allocation of responsibility for actions on a particular individual or department may be drastically affected with increasing inter-organizational cooperation.
- f. *Culture and values* intangible characteristics that underlie the operating basis of an organization are considered in the context of sensemaking, as increasing interaction magnitude causes organizational cultures to be mixed and potentially contradictory.
- g. *Planning* an important relationship exists between the ability of a military planner or civilian policy maker to agree a goal, and their authority to commit resources towards achieving that goal. Increasing interaction magnitude will increase the complexity of this relationship and require new planning methods.
- h. *Evaluation*⁵ key processes, resources, and planning required for evaluation activities will be altered with increasing interaction magnitude.

^{5.} *Evaluation* is the field of study and practice that considers measuring the performance and effectiveness of organizations and implemented programs. This roughly corresponds to the military concept of campaign assessment, or effects-based assessment. See Williams and Morris (2009) for a detailed comparison.

Operationalizing Principle 3: Understand the Implications

The actual implication of the various levels defined in the cooperation typology—the IMM—will now be discussed. It should be noted that this article is not a case study and does not intend to define what a comprehensive approach should look like for any one organization; instead, it lays the foundation for decision-makers to begin understanding the practical implications of working with other organizations in a more cooperative manner. Space requirements do not permit an examination of all eight organizational characteristics in the above list. Instead, I consider a. to e., with the remaining items being covered briefly within Table 1. The implications of operating at a particular interaction magnitude level on characteristics a. to e. are now analyzed.

Organizational Structure

The dominant paradigm of organization utilized by the vast majority of government is traditional bureaucratic hierarchy with legal-rational authority (Weber 1947). Bureaucracies are notoriously difficult organizations between which to make cooperation function—the difficulties in the response to Hurricane Katrina, for example, were in a large part due to the complexities of coordination between federal, state, and local government agencies (Bryson et al. 2006; Morris et al. 2007). Furthermore, governments and militaries are generally organized by function, whereas many problems are place-based or transcend the boundaries of a single function (Kettl 2003; 2006).

A potential solution has been to reduce centralization by outsourcing government functions to private and non-profit organizations, or by creating new structures such as matrix or network-based organizations (Goldsmith and Eggers 2004; Milward and Provan 2000; Provan and Kenis 2001). These new organizational structures, however, have implications that conflict with many tenets of the dominant organizational bureaucratic paradigm: a diffusion of responsibility, accountability, risk, and control. The implications become more pronounced as the scale of interaction magnitude is ascended.

Kettl (2003) notes that contingent network structures are a potential solution to the Department of Homeland Security's coordination problems; however, these organizational solutions must be coupled with leadership and culture changes. In this sense, networks are more related to mechanisms of information exchange in which the integrity of organizational boundaries are maintained. In our typology, Kettl is recommending operating at a level of de-confliction. His *contingent coordination*⁶ involves maintaining each organization's mission and function, but de-conflicting overlapping activities and working out joint solutions to meet gaps in service. Individual managers and staff may be responsible for forming networks and working outside the hierarchy, but there are no organizational structure changes required.

In their analysis of the Coast Guard's emergency response to Hurricane Katrina, Morris et al. (2007) found evidence for both Kettl's *contingent coordination* model and "the successful use of both traditional hierarchical and network-based coordination" (94). The Coast Guard was able to successfully respond in a number of cases as a result of their culture of *contingent coordination* as a standard operating procedure. The use of traditional military command structures was incorporated in addition to networks outside the hierarchy where required. The Coast Guard has some level of formalization in its network structures in the many federal statutes that require committees to be formed around key issues. As a result of these standard interorganizational working procedures, the Coast Guard has "embraced the many 'languages' of other stakeholder organizations . . . and has a long history of drawing on local relations and partnering to get the job done" (101). In our typology, the Coast Guard

^{6.} Note that this is Kettl's naming and does not refer to the coordination level in the IMM.

operates at an interaction magnitude level of coordination, which implies that interorganizational structures (committees) are formalized within the framework of the dominant hierarchy, and that the output from these structures feeds back into organizational policy.

The majority of case studies reviewed on cooperative endeavors recognize the use of some form of interorganizational relationship to achieve cooperation such as networks for information exchange (for de-confliction), or standing committees (for coordination). Several studies have reviewed hypothesized cooperative governance at the interaction magnitude of collaboration in our typology. Diehl (2005), McNamara (2008), and Thatcher (2007) use an "interorganizational arrangements model" that defines a cooperative endeavor called expanded partnership in which "a new collective unit is formed to implement the initial collective objective (and) partner organizations establish formal linkages with the new collective unit" (Diehl 2005, 51). Mattessich et al. (2001) come to similar conclusions, defining collaboration as "a more durable and pervasive relationship. . . bring(ing) previously separated organizations into a new structure with full commitment to a common mission" (60). Ansel and Gash (2007) in their wide-ranging review of the cooperative governance literature conclude:

"Collaboration implies two-way communication and influence between agencies and stakeholders and also opportunities for stakeholders to talk with each other. Agencies and stakeholders must meet together in a deliberative and multilateral process. In other words, as described above, the process must be collective." (546).

A common thread in these definitions is the recognition of a formal entity with a defined responsibility outside the traditional organization. It is telling that there is little evidence from case studies for the interaction magnitude of collaboration: in practice, there are significant challenges in achieving this level concerning organizational autonomy and defining responsibilities. A fundamental tension exists between the level of cooperation and organizational independence (Eikenberry et al. 2007). To reach the highest levels of interaction magnitude without losing independence, non-government organizations would have to consider fundamentally reshaping their basic structures to become more decentralised, making network structure the main organizational arrangement (Keast et al. 2004), and government organizations would require firm political backing to accept the consequences. If decentralization is difficult (e.g., in the military), then in order to reach the interaction magnitude of collaboration some independence must be conceded and risk assumed, as collaboration necessarily means consensus on key policy objectives and achieving policy coherence.

Communications

Communications are critical to the functioning of any organization and equally critical to the functioning of cooperative endeavours (Comfort 2002). Communications are defined in the context of organizational structures and procedures and are implemented through the creation of physical systems,⁷ the primary function of communications systems being to "create shared meanings among individuals, organizations and groups" (Comfort 2007, 194). Outside of the emergency management and defense fields (see for example, Alberts and Hayes 2007; Comfort 2007; Kapucu 2006; Morris et al. 2007), the cooperation literature contains little mention of physical implications on communication systems, using instead organizational structure as a proxy variable and considering physical systems as a consequence of organizational design.

The lowest case of interaction maturity is *conflicted*, meaning there is no cross-organizational communication. Even before the information revolution this was never completely the case, however, until

^{7.} Due to their now ubiquitous use, I consider *virtual* communications such as e-mail, blogs, web pages and other online tools as essentially *physical* in character.

very recently, it can be assumed that cross-organizational communication techniques and tools were very limited. Communications between organizations can be any combination of formal or informal networks. *Formal* implies fixed infrastructure and institutionalized protocols; *informal* communications means ad-hoc networks developed for a specific, limited circumstance.

Although C2 scholars are now recognizing that fixed and formal networks with well-defined rules are not necessarily the most effective in all circumstances (Alberts 2007), I can make a general assertion that even if organizations decide to collaborate with a flexible, decentralized system, a conscious and institutionalized decision must still be made in order to link communications with other organizations' networks, regardless of their physical configuration. Thus, a requirement for increasing interaction magnitude is that the level of institutionalization of cross-organizational communication must be increased. Practically, this means that leadership must issue policy that encourages the formation and maintenance of a network of contacts, that information *push* as well as *pull* is encouraged, and that formalization of networks increases—both in physical infrastructure and in peer-to-peer contact.

At the maximum stage of interaction magnitude, the ownership of communications infrastructure may still be apparent, but the management and user community becomes transparent—that is, the formal and informal communication networks are decoupled from organizational boundaries. This requires a high-level leadership agreement between collaborating organizations. A simple, physical example of this is the NATO Wide Area Network with its shared email, web page, and phone directory.

Information Sharing

The concept that information sharing is a panacea for all situational awareness ills has been prominent in recent years, especially in the military community. A major hindrance is that the military information community is extremely reluctant to share external to its immediate customers, for operational security reasons, and for reasons of national interest. However, there are still avenues for exploration in the sharing of operationally sensitive information for the purposes of policy coherence. The examples of Interpol and the US-UK-CA-AUS-NZ "five-eye" intelligence sharing network are relevant cases.

The level of information sharing possible between organizations is, to some extent, dependent on the level of interaction magnitude in the communications dimension. However, it can be physically separated. An NGO working in Afghanistan may have a policy to either share information with military forces or to maintain complete isolation as a matter of principle. For the purpose of this article which is to develop *meanings* for the various terms used in the comprehensive approach, the higher levels of interaction maturity may yield implications that are simply not acceptable for most organizations.

It can be postulated that the interaction magnitude in information sharing is proportional to the policy coherence between organizations. If organizations share radically different perspectives on a situation and fundamentally different objectives, then information sharing may not exceed de-confliction. However, if organizations have aligned policy goals, then information sharing becomes more likely. Therefore, an implication of achieving higher interaction magnitude levels would be necessarily high-level leadership agreement on policy.

Decision Making and Operating Procedures

As with implementation in a hierarchy, cooperative endeavors require a set of explicit or implicit rules, procedures and decisionmaking mechanisms to guide implementation towards achieving objectives. As we proceed up the scale of interaction magnitude, decision-making mechanisms become more formalized and rules, norms and conventions more explicit. Thomson et al. (2006, 24) consider that joint decision making and shared power arrangements are key in reaching agreement on collaborative activities. In the cooperation typology, I associate this with the interaction magnitude of coordination, where consensus decision making occurs at high levels jointly between organizations. This is also consistent with government being the key convener and focal point for coordination at this level. Moving up to the interaction magnitude of collaboration, one expects to see joint decision making at all levels in the cooperating organizations or the decisions of an external network organization adopted across all participating organizations.

In the cases reviewed (e.g., Ansell and Gash 2007) the increasing formalization of extra-organizational decision-making structures, rules, norms and conventions with increasing interaction magnitude is emphasized. As cooperation increases, the levels at which crossorganizational decisions are made also increases. I associate deconfliction with decision making on a semi-informal basis through self-governing structures at lower levels. Coordination implies that a new organizational structure—a permanent standing body, committee or working group meeting on a regular basis—must be created at either a relatively high level of organization or at lower levels, but with high level formal mandates. Collaboration implies that crossorganizational decision making occurs at more than one level in the organization.

Authority and Accountability

Authority, in the traditional bureaucratic sense, means the ability to exercise power over others, either through coercive or material incentives (the ability to punish and the ability to reward). Practically, authority is associated with the ability to direct resources and to make policy decisions at a certain level. If an organization wishes to de-conflict with another, issues of authority arise simply in making the decision of whether or not to de-conflict with certain organizations. At the level of coordination, decisions must be made to establish communication channels and engage in some level of information sharing, and to perhaps allow a certain level of leadership to agree on shared policy and plans. At the collaborative level—assuming senior leadership has made the decision to collaborate—then authority must exist at lower levels to allocate some level of control of resources to another organization.

The practical implications for decentralizing authority-and consequently accountability-are severe for high levels of interaction magnitude. The benefit of operating in a bureaucracy is that clear line of responsibility and accountability can be established (Weber 1947; Wilson 1989). A major problem of decentralization is that maintaining accountability incurs a cost-the cost of monitoring the decentralized activity (Kettl 1993, 2000, 2002; Provan and Kenis 2007). Assuming that collaboration means that organizations divide up the lower-level goals to achieve shared higher-level goals, or sharing control over common resources, then monitoring functions become an administrative burden, or high levels of trust are required. Monitoring functions may include the following: regular leadership board meetings to ensure that resources are correctly allocated and missions are on track; increasing contract monitoring staff to implement contracts with private companies or non-profits; and extending the use of cross-organizational liaison personnel to ensure that work agreed upon is carried out as planned.

The issue of accountability in collective endeavors can be illustrated by an example: suppose that a NATO command agrees to provide logistical support and funding to an NGO if they provide medical personnel inside a refugee camp. If poor operating standards of the NGO results in a significant number of refugee deaths, who is accountable? On one hand, NATO could be accountable for not ensuring that the NGO operated to standards, received adequate funding or specifying the requirements; on the other hand, the NGO is accountable for failing to provide correct service. Certainly, more complex situations could be envisaged.

As organizations move up interaction magnitude levels, maintaining freedom of action whilst increasing collaborative activity will incur a necessary cost of loss of accountability, responsibility, or extra financial or administrative cost to maintain these values (Milward and Provan 2001).

Conclusions

An initial conclusion from the literature reviewed is that in most cases currently, cooperative endeavors occur primarily at the level of deconfliction. Increasing cooperation beyond de-confliction requires a challenging level of change and may actually make the entity of cooperating organizations resemble a centrally controlled government department in many respects. The "paradox of cooperation" is that in order to realize the benefits of increasing interagency interoperability in collective endeavors, key organizational characteristics must be fundamentally affected and altered. Although the benefits are often extremely valuable, they must be balanced with the requirement to maintain certain key necessities in governmental and even non-governmental organizations: accountability, authority and responsibility; all of which incur political, administrative or financial cost. This paper has provided food for thought to allow development of a rational framework for development of military support to a comprehensive approach. Two key conclusions are reached regarding the need for a typology of cooperation, and the need to better understand the implications of the comprehensive approach, allowing militaries to move past hypothetical discussion.

Typology of Cooperation: In order to improve the development of detailed proposals for operationalization of a comprehensive approach, the concept of cooperation has been broken down into a hierarchical typology that defines an increasing level of interaction from conflicted, de-conflicted, coordinated, and collaborative (Table 1). This increasing level of interaction has an increasing magnitude of impact on the respective organizations. The practical implications for organizations on a variety of organizational characteristics are considered. This model is not a statement of fact; it is a suggested way in which the operationalization of the comprehensive approach should be tackled and a tool for enabling discussion using commonly understood terminology.

Understanding of Implications: The primary conclusion for organizational leaders is that by understanding the implications presented in this paper, a comprehensive approach as envisioned in the current discussions may be far too ambitious to achieve without significant and radical policy realignment that is unlikely to occur in the current political landscape. The practical result of this work would be detailed policy guidance to military structures on what should be accomplished with respect to achieving a certain level of interaction magnitude with certain organizations.

References

Agranoff, R. 2006. Inside Collaborative Networks: Ten Lessons for Public Managers. *Public Administration Review* 66:56-65.

- Agranoff, R., and M McGuire. 2003. Collaborative Public Management: New Strategies For Local Governments. Washington, DC: Georgetown University Press.
- Alberts, David. 2002. Information Age Transformation. Washington, DC: Command and Control Research Program (CCRP).
- Alberts, David. 2007. Agility, Focus, and Convergence: The future of Command and Control. *The International C2 Journal* 1(1):1-30.
- Alberts, David, and Richard Hayes. 2003. *Power to the Edge: Command and Control in the Information Age.* Washington, DC: CCRP.
- Alberts, David, and Richard Hayes. 2006. Understanding Command and Control. Washington, DC: CCRP.
- Alberts, David, and Richard Hayes. 2007. *Planning: Complex Endeavors*. Washington, DC: CCRP.
- Ansel, C., and A. Gash. 2007. Collaborative governance in theory and in practice. *Journal of Public Administration, Research and Theory* 18(4): 543-571.
- Blanchard, L. A., C. C. Hinnant, and W. Wong. 1998. Market-based reforms in government: Towards a social subcontract? *Administration* and Society 30(5):483-512.
- Blatter, J. 2001. Debordering the world of states: Towards a multi-level system in Europe and a multi-polity system in North America? *European Journal of International Relations* 7(2):175-209.
- Boston, J. 1992. The problems of policy coordination: The New Zealand experience. Governance: An International Journal of Policy and Administration 5(1):88-103.

- Bryson, J, B Crosby, and M Stone. 2006. The design and implementation of cross-sector collaborations: Propositions from the literature. *Public Administration Review* 66:44-55.
- Chatham House. 2005. Globalization of Security. In *ISP/NSC Briefing Paper*. London, England: The Royal Institute of International Affairs.
- Chisholm, D. 1992. Coordination without hierarchy: Informal structures in multiorganizational systems. Berkeley: University of California Press.
- Comfort, L. K. 2002. Rethinking security: Organization fragility in extreme events. *Public Administration Review* 62:98-107.
- Comfort, L K. 2007. Crisis management in hindsight: Cognition, communication, coordination, and control. *Public Administration Review* 67:189-197.
- Cornish, S. 2008. Rethinking deeper integration: The case for safeguarding independent humanitarian action in Afghanistan and beyond. *The Pearson Papers* 11(1):71-86.
- De Coning, C. 2007. Coherence and Coordination in United Nations Peacebuilding and Integrated Missions. In Security in Practice 5. Olso, Norway: Norwegian Institute of International Affairs (NUPI). <<u>http://english.nupi.no/Publications/Books-and-reports/2007/</u> <u>Coherence-and-Coordination-in-United-Nations-Peacebuilding-and-Integrated-Missions</u>>
- Diehl, Susan Hanson. 2005. Examining Characteristics of Collaboration Through the Lens of an Interorganizational Arrangements Model: A Case Study of Colleagues in Caring. Regional Collaboratives for Nursing Work Force Development. Ed.D., University of Hartford, Connecticut.

- Egeberg, Halvor S. and A. Kjølberg. 2001. The Growing Gap between Force and Power. Kjeller, Norway: The Norwegian Defence Research Establishment (Forsvarets Forskningsinstitutt - FFI). FFI/Rapport, 2001/01363.
- Eikenberry, A M, V Arroyave, and T Cooper. 2007. Administrative failure and the international NGO response to hurricane Katrina. *Public Administration Review* 67:160-170.
- Flanagan, S, and J Schear. 2008. Strategic Challenges: America's Global Security Agenda. Dulles, VA: National Defense University Press.
- Friis, K, and P Jarmyr. 2008. Comprehensive Approach: Challenges and Opportunities in Complex Crisis Management. In Security in Practice 11. Oslo, Norway: Norwegian Institute of International Affairs (NUPI). <<u>http://english.nupi.no/Publications/Books-</u> and-reports/2008/Comprehensive-Approach.-Challenges-andopportunities-in-complex-crisis-management>
- Goggin, M L, A Bowman, J P Lester, and L O'Toole, J. 1990. Implementation Theory: Toward a Third Generation. Glenview, IL: Scott Foresman.
- Goldsmith, S, and W D Eggers. 2004. *Governing by Network: The New Shape* of the Public Sector. Washington, DC: Brookings Institution.
- Huxham, C, and S Vangen. 2005. *Managing To Collaboration: The Theory* and Practice of Collaborative Advantage. Abingdon, England: Routledge.
- Imperial, M. 2005. Using collaboration as a governance strategy: Lessons from six watershed management programs. *Administration and Society* 37(3):281-320.

- Kapucu, N. 2006. Interagency communication networks during emergencies: Boundary spanners in multi-agency coordination. *The American Review of Public Administration* 36(2):207-225.
- Keast, R, M P Mandell, K Brown, and G Woolcock. 2004. Network structures: Working differently and changing expectations. *Public Administration Review* 64(3):363-371.
- Kettl, D F. 1993. Sharing Power: Public Governance and Private Markets. Washington, DC: Brookings Institution.
- Kettl, D F. 2000. The Transformation of Governance: Globalization, Devolution, and The Role of Government. *Public Administration Review* 60(6):488-497.
- Kettl, D F. 2002. The Transformation of Governance: Public Administration for twenty-first century America. Baltimore, MD: John Hopkins University Press.
- Kettl, D F. 2003. Contingent coordination: Practical and theoretical puzzles for homeland security. *The American Review of Public Administration* 33(3):253-277.
- Kettl, D F. 2006. Managing boundaries in American administration: The collaboration imperative. *Public Administration Review* 66:10-19.
- Lipson, M. 2007. Peacekeeping: Organized hypocrisy? European Journal of International Relations 13(1):5-34.
- Mattessich, P W, M Murray-Close, and B R Monsay. 2001. *Collaboration: What makes it work.* 2nd ed. St. Paul, MN: Fieldstone Alliance.
- May, P J, J Sapotichne, and S Workman. 2006. Policy coherence and policy domains. *The Policy Studies Journal* 34(3):381-403.

- Mazmanian, D A, and P A Sabatier. 1983. Implementation and Public Policy. Glenview, IL: Scott Foresman.
- McNamara, Madeleine Wright. 2008. Exploring Interactions during Multiorganizational Policy Implementation: A Case Study of the Virginia Coastal Zone Management Program. Ph.D., Old Dominion University, Virginia.
- Milward, H B, and K Provan, G. 2000. Governing the hollow state. *Journal of Public Administration, Research and Theory* 10(2):359-379.
- Morris, J C, E Morris, and D Jones. 2007. Reaching for the philosopher's stone: Contingent coordination and the military's response to hurricane Katrina. *Public Administration Review* 67:94-106.
- Nelson, P, and E Dorsey. 2007. New rights advocacy in a global public domain. *European Journal of International Relations* 13(2):187-216.
- North Atlantic Treaty Organization, NATO 2006a. *Riga Summit* Declaration. <<u>http://www.nato.int/docu/pr/2006/p06-150e.htm</u>>
- North Atlantic Treaty Organization, NATO 2006b. SAS-050 Final Report: Exploring New Command and Control Concepts and Capabilities, NATO Research and Technology Organization. <<u>http://www.rta.nato.int/</u> activity_pfp.asp?ACT=SAS-050>
- North Atlantic Treaty Organization, NATO. 2008a. *Bucharest Summit Declaration*. <<u>http://www.nato.int/cps/en/natolive/official</u> <u>texts_8443.htm</u>>
- North Atlantic Treaty Organization, NATO. 2008b. Analysis Report for Multinational Experiment 5. Norfolk, VA: Operational Analysis Branch, Allied Command Transformation.

- Organization for Economic Cooperation and Development. 2003, July. Policy Coherence: Vital for Global Development: OECD Public Affairs Division.
- Picciotto, R. 2005. The Evaluation of Policy Coherence for Development. *Evaluation* 11(3):311-330.
- Pressman, J L, and A B Wildavsky. 1984. *Implementation*. Berkely, CA: University of California.
- Provan, K, G, and P Kenis. 2007. Modes of Network Governance: Structure, Management and Effectiveness. *Journal of Public Administration, Research and Theory* 18(2):229-252.
- Pugh, M. 2001. The Challenges of Civil-Military Relations in International Peace Operations. *Disasters* 25(4):345-357.
- Simo, G, and A L Bies. 2007. The Role of Non-Profits in Disaster Response: An Expanded Model of Cross-Sector Collaboration. *Public Administration Review* 67:126-142.
- Stockton, N. 2002. Strategic Coordination in Afghanistan. Islamabad, Pakistan: Afghanistan Research and Evaluation Unit (AREU). <<u>http://www.areu.org.af/index.php?option=com_docman&Itemid=&task=doc_download&gid=260</u>>
- Stone, Deborah. 2002. Policy Paradox: The Art of Political Decision-Making. New York, NY: Norton.
- Thatcher, Christine. 2007. A Study of an Interorganizational Arrangement Among Three Regional Campuses of a large Landgrant University. Ed.D., University of Hartford, Connecticut.

- Thomson, Ann Marie. Collaboration: Meaning and Measurement. (Ph.D. diss., Indiana University, 2001).
- Thomson, A M, and J Perry. 2006. Collaboration processes: Inside the black box. *Public Administration Review* 66:20-32.
- Weber, M. 1947. *The Theory of Social and Economic Organization*. New York, NY: The Free Press.
- Williams, A., and J C Morris. 2009. Theory-based Evaluation In The Military: Theory On The Front-Line. *American Journal of Evaluation* 30 (1):62-79.
- Wilson, J, Q. 1989. Bureaucracy: What Government Agencies Do And Why They Do It. New York, NY: Basic Books.

Interaction Magnitude	Organizational Structure	Communications	Information Sharing	Decision Making and Operating Procedures	Authority and Accountability	Culture and Values	Planning and Evaluation
Collaborative	 Separate, decentralized planning as execution organizations formed, that share power and authority between organizations and may control shared resources Permanent staff exchanges Organizational boundarics become blurred 	 Communication planned by senior during operations Collaborative exclabioarative mechanisms (emul, phone, online tools) are widcapread Physical C2 cross- organizational infrastructure begins to emerge 	 Security and ownership issues begin to be transcended Information is multi- source, corrobated and rich with metadata Information is pushed and pulled as required 	 Combined decision- making at all levels in organizations Decentralized forums inde key phicy decisions y consensus Separate organizational nuls, norms and nuls, norms and nuls, norms and prestional procedures 	 Emerging cross- organizational authority- organizations having authority over staff and resources from other organizations Mutual accountability organizations Mutual accountability compacts developed for compacts developed for functures as risk is widely shared 	 "Extra-subjective" organizational avarentism glitutional avarentes and degrained ultural degraines built through shared (but not equal) cultural perspectives) 	 Planning processes are synchronized at output beed fix.e. detailed project plans) Recources allocation is necessarily and the set of resources are commonly proded Planning for drivion and sharing of evaluation tasks and resources
Coordinated	 Formal cross- organizations forums or committees that have backing of or ganization leadership - Institutionalization of forum / committee output into organization's planning and execution processes planning and execution processes 	 Cross-organizational recommunication recommunication organizational processes available processes standard. Formary information standard. Format communi- entions infrastructure entrege (sg joint weberges and e-mail addreses, defaulted phone numbers) 	 Information is Multi- source and corroborated inter-organizationally Timeliness begins to depend on cross- odepend on cross- boundaries Each organization boundaries Each organization 	 Mandated by senior leadership and combined decision- making at high level of organizations maybe responsible for key policy decisions 	 Wide ranging determining to degraphino of authority to degraphino of authority to the degraphino of authority of plan goals and allocate resources (e.g. operational def having frievedonal def having frievedon to allocate mission resources to mission resources to authorit having to receive authorization from higher levels) 	 "Generic-subjective" organizational avareness and cultural identities built through structural mechanisms) 	 Planning processes are synchronized at outcome level (operational level). Goals are agreed cross- organizationally organizationally experimentation and deconflicted at the operational level operational level operational level
De-conficted	 Regular, informal cross- organizational meetings with individual staff Communities of interest may energies of interest may energies of interest operate relatively operate relatively independently of each other 	 Some inhird person to person communication performed on individuals own initiative, usually ad- hoc Information exchanges between organizations are <i>pulls</i> 	 Each organization pulls from external sources or external organizations when required. 	 Individual lader's effection-making may be influenced by the activities or phans of activities or phans of activities or phans of activities or phans of result (informal interactions or Organizations) 	 Some limited delegation of specific fullergation of specific liver levels (e.g. protentor to an operational Car to operational dartory and informant & accoun- shifty vernatus with individual organizations 	 "Intersubjective" "grant and a sensembling structural averages built through social interactions) 	 Planning processes are synchronized at inpact level, i.e. top-ked goals are shared cross- are shared cross- organizationally expanse e- Completely separate conduction processes and resources, some mutual avarences of other organizations programs
Conflicted	 Independent organizational structures Organizations function entrely separately. 	No cross-organizational communication Information owned and Information owned and controlled by seath respective organization organization ownership stars mean only very limited or no information sharing nosible	 Information owned and controlled by such respective organization Classification and ownership issus mean only very limited or no infly wery limited or no information sharing possible 	 Decision making independent within each individual organization No shared goals 	 Traditional legal- rational authority in a hierarchical chain hierarchical chain within organizational boundaries 	 Independent sensemsking models for each organization. 	 Planning processes are independent and do not overlap. Porential for duplicative evaluations

Table 1. Indicators of Increasing Interaction Magnitude