Symposium on Networked Governance

Presented by the
GW Project on Forward Engagement
&
The Center for Technology in National Security Policy at
The National Defense University

The George Washington University
November 29th, 2006
10:30 am – 3:00 pm
Conference Notes

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First Name	Last Name	**Organization**
Col. Robert	Ballew	Office of Force Transformation
Charles	Balck	NDU
Hans	Binnendijk	NDU
Pierre	Chao	CSIS
Jeffrey	Cooper	SAIC
Henry	Farrell	GWU
Patrick	Gorman	Booz-Allen-Hamilton
Nikolas	Gvosdev	The National Interest
Richard	Hayes	Evidence Based Research
Richard	Ivanetich	Institute for Defense Analyses
Lisa	Kimball	Group Jazz
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Kent	Myers	SAIC
Mark	Notturno	Interactivity Foundation
Lt. Col. Jon	Petruzzi	The Joint Staff
Claudia	Pharis	The Catalyst Institute
Terry	Pudas	Office of Force Transformation
Marie	Rudolph	GWU
Richard	Sawaya	GWU
Neil	Sroka	Trippi and Associates
Stuart	Starr	NDU
Stuart	Umpleby	GWU
Bing	West	Author, RAND

Opening Remarks
Professor Leon Fuerth
Hans Binnendijk

Fuerth:

- Our term for "interesting times" is the "age of complexity."
    - This means institutions of all kinds are struggling to adapt to rapidly accelerating change. The common denominator of these adaptations is a shift to networked systems of control.
        - The civilian government continues to function using outmoded 19th and 20th century organizational systems.
        - We now have both an intelligence czar and a drug enforcement czar, reflecting desire for accountability, yet we have few institutions that reflect the need for flexibility.
        - Civilian government lacks networked structures that can respond to challenges under conditions of complexity: multiple, interlocking and fast-developing.
- For years, the United States military has been preparing for network-centric warfare and coming to terms with complexity.
    - When the civilian government fails to integrate foresight and policy, then the public turns to the military as the only institution that can get the job done.
    - Public confidence in the civilian government is diminishing.

Binnedijk:

- We are now thinking of a Goldwater-Nichols II.
    - Goldwater-Nichols I [the Goldwater-Nichols Department of Defense Reorganization Act of 1986] was about jointness in the military.
    - Goldwater-Nichols II is about how technology affects jointness and allows us to do it better.
- Department of Defense has assumed a leadership role in tackling network-centric warfare and complexity issues.
    - A rough estimate places current DOD spending on information technology alone at $50 billion per year.
    - Through the process of defense transformation, new technology is introduced, then new operational concepts, then new organizational structures.
    - But culture also has to change.
- I want to discuss theory and practice.
    - I want to discuss two case studies, in Afghanistan and Iraq.
- Networks allow you to command from the front rather than from the rear.
    - You are probably better off commanding from the front.

Fuerth:

- Our system is deliberately designed to be deliberative.

  - It takes time to understand problems, debate the issues, and formulate appropriate policy responses.
  - Then it takes time to execute those policies.
- But new developments are emerging at faster and faster rates.
  - We will be overtaken by an insurgent, historic event that will occur too quickly for us to react and we will incur significant societal costs.
- I do not see any kind of systematic response to this problem in civilian government.
  - I do see an approach taken by the military over the course of decades.
  - The civilian government can learn valuable lessons about organization from the military.

Part I – Briefings

Networking and Complex Endeavors

Dr. Richard E. Hayes
Evidence Based Research, Inc.

Hayes:

- The changing challenge: why complex endeavors?
  - Fundamental changes in the threats to national security
  - Fundamental changes in the challenges facing society and government
  - Enormous changes in information technologies
  - Massive expansion of relevant partners
  - Globalization and increasingly close coupling across the political, social, economic, and intellectual arenas
  - Increasingly challenged by complex adaptive systems
- We recognize a change in the context of military operations that is forcing the military and its partners to find new ways of doing business.
- The nature of the threats has changed and so the role of the military has changed.
  - The military now supports its civilian partners through policing actions and other functions.
- Just as the State Department still uses up so much paper, may of our allies have not take sufficient advantage of information technology and continue to do business in outmoded fashions.
  - We need to figure out how to break down the barriers that inhibit collaboration with allies in the area of information technology.
- With the process of globalization, we are increasingly challenged by complex adaptive systems.
  - Transnational criminal organizations are instances of complex adaptive systems.
- The tents of network-centric warfare:
  - 1) A robustly networked force improves information sharing.
  - 2) Information sharing and collaboration enhance the quality of information and shared situational awareness.
  - 3) Shared situational awareness enables self-synchronization.
  - 4) These, in turn, dramatically increase mission effectiveness.

Fuerth: By the way, self-synchronization did not happen in New Orleans.

Hayes: Right.

Colonel Robert Ballew: We [the military] won't do it *unless* it increases mission effectiveness.

Hayes: The point is we need predictive knowledge – not simply to understand what is current or happening now but what will happen in the future and what the causes and implications of that are. Collaboration is the key to this. When people collaborate, it turns out to be a really rich experience.

Hayes:

- Collaboration: working together for a common purpose
    - Improves the quality of information
        - Provides a means for sharing information and updates
        - Highlights contradictions and complementary information
        - Provides multiple perspectives and interpretations
    - Improves situation awareness and in-depth understanding
        - Enhances the likelihood of considering alternative perspectives
        - Helps to bridge national and professional cultural differences
    - Increases the likelihood of creating common intent and awareness of the intents and goals of different actors
    - Improves the actors' knowledge of one another, including competences, trustworthiness, and limits
    - Builds trust through interaction and transparency
    - Enables better synchronization, more agile execution, and adjustments during execution

Richard Ivanetich: Your use of the term common intent is interesting because in the traditional battlefield sense, we speak only of the commander's intent.

Hayes: I've been in combat. When different commander's intents are disjunctive, we run into problems. The best mission effectiveness occurs when commander's intent is the same all around.

Ballew: We put out commander's intent to everybody. Once the mission starts, there is no more commander's intent. It has already been communicated and that is that.

Hayes: These are propositional tenets [of network-centric warfare].

Bing West: Is there really anything new here or would any decent military leader have been doing this for the past 2,000 years?

Hayes: There are outstanding leaders who have been doing this for quite some time.

West: We are starting with an organizational theory, like Genghis Khan did. Then we add information technology.

Hayes: We improve knowledge of each other with collaboration and we build trust and create common views and understanding and this all makes it easier to do synchronization.

Hayes:

- Assumptions Required for Effective Self-Synchronization
  - Common Intent
  - Shared Information, Awareness, and Understanding
  - Competence of the Partners
  - Trust in:
    - Information
    - Partners
    - Leadership
    - Peers
    - Subordinates
- Agility
  - Robustness – the ability to maintain effectiveness across a range of tasks, situations, and conditions
  - Resilience – the ability to recover from or adjust to misfortune, damage, or a destabilizing perturbation in the environment
  - Responsiveness – the ability to react to a change in the environment in a timely manner
  - Flexibility – the ability to employ multiple ways to succeed and the capacity to move seamlessly between them
  - Innovation – the ability to do new things and the ability to do old things in new ways
  - Adaptation – the ability to change work processes and the ability to change the organization
- Industrial Age Enterprise Management
  - Decomposition
  - Specialization
  - Hierarchical Organizations
  - Optimization
  - De-confliction
  - Centralized Planning
  - Decentralized Execution
    - Industrial Age Approaches Assume Solutions can be Designed and Executed
- Complicated and Complex Situations
  - Complicated Situations
    - Have many actors and elements

        - Are highly dynamic
        - Have understandable cause-and-effect relationships and temporal dynamics
    - Complex Situations
        - Involve dynamics and behaviors that cannot be predicted in detail
        - However, they involve dynamics and behaviors can be expected to form recognizable patterns
        - Include circumstances where relatively small differences in initial conditions or perturbations lead to very large changes or effects
    - Complex Adaptive Systems (CAS)
        - Are characterized by scale-free networks and effects that form power law distributions
        - Tend to be robust: persist and function across a wide range of circumstances
- Complex Endeavors
    - Seek to influence (not control) Complex Adaptive Systems (CAS)
    - Include members and behaviors of the endeavor as part of the Complex Adaptive System
    - Involve coupling between and among domains and arenas
        - Domains: physical, information, cognitive, and social
        - Arenas: political, economic, military, and intellectual
    - Behavior within a CAS is determined by:
        - Initial conditions
        - Dynamic relationships
    - As a gross generalization, the results of actions intended to influence CAS cannot be predicted
        - Multiple, synergistic actions are needed
        - Actions used to improve information and understanding
- Conclusions
    - The challenges facing societies and governments today
        - Arise from complex adaptive systems
        - Can only be influenced, not controlled
    - Successful Networked Governance requires
        - Rich information sharing
        - General collaboration
        - Robust socio-technical networks
        - Shared situational understanding
        - Common intent
        - Competent partners
        - Trust
- Relevant Publications
    - *Command Arrangements for Peace Operations* (Alberts & Hayes, 1995)
    - *Power to the Edge* (Alberts & Hayes, 2003)

- *Effects Based Operations* (Smith, 2003)
- *Governing by Network* (Goldsmith & Eggers, 2004)
- *The Agile Organization* (Atkinson & Moffat, 2005)

- Wicked Problems
  - According to Rittel[1]:
    - A problem cannot be understood until a solution is developed.
    - Wicked problems have no stopping rule.
    - Solutions to wicked problems are neither right nor wrong.
    - Every wicked problem is essentially unique and novel.
    - Every solution to a wicked problem is a "one-shot operation."
    - Wicked problems have no given alternative solutions.
      - Wicked Problems are a Natural Result of Complexity
- Self-Synchronization
  - Synchronization means "purposeful arrangement in time and space"
  - Self-synchronization means that the courses of action chosen are not dictated by any central authority, but are developed by the individuals and organizations engaged in an endeavor
  - Effective self-synchronization has clear prerequisites:
    - Commonality of purpose
    - Competence of the actors that is recognized by the other actors

Self-synchronization demands common intent and shared information awareness and understanding. Partners have to be competent (so they can be counted on), and trust is very important.

We are not just talking about adaptation, we are talking about flexibility; we have to know of multiple ways to succeed. One action can lead to a reaction that is unanticipated. We need to be able to respond to contingencies using a number of different methods and strategies.

The dynamics and behaviors of complex systems are such that one cannot make detailed predictions; however, you can recognize emerging patterns. The phrase complexity rules out detailed predictions.

Fuerth: The problems we face are complex, but that doesn't give us a free pass. If we can't manage on the basis of predictions, then how do you manage?

Hayes: With complex adaptive systems, we are trying to influence the problem, not control it. As you engage the problem, you alter the system. There is enormously tight coupling. As a gross

[1] Rittel, Horst (1969) *Reflections on the Scientific and Political Significance of Decision Theory.* Working Paper 115

generalization, you can't predict a complex adaptive problem, so you have to undertake multiple, synergistic approaches at one time.

Networked Organizations

Irving Lachow
Information Resources Management College,
National Defense University

Lachow:

- I want to provide you with some observations based on the work we do at IRM College at NDU, where we teach government leaders how to manage organizations.
- The focus here is on the business affairs side, not military. That's where I'm coming from. I assume wicked problems and I assume a bureaucratic context.
- People will not adopt a technical solution unless they really feel there is really something in it for them.
    - For networking, we need a central depository where people put their knowledge.
        - It takes time to do that.
    - People are resistant to change for a variety of reasons; people don't like to change.
    - Power relationships are also resistant to change.
    - If you don't change institutional culture, you don't change anything.
        - Bureaucratic politics
            - People will still be rewarded for protecting themselves and their organization's turf, funding, and resources.
- In a wicked problem, there are a number of complicating factors.
    - Different agencies come at the same problem with different cultures, terminologies, and approaches.
- There are always clear and immediate costs in any organizational solution you want to implement, while the benefits are murky, ambiguous, and further on down the road, so resistance is inevitable.
- Information technology, in most cases, is necessary to facilitate networking.
    - Some organizations can facilitate a networked structure without the use of information technology. But usually we need technology.
- You need to get everyone to agree on shared terminology, approach, time tables, etc.
    - Then decision making happens much faster because everyone has reached consensus through being exposed to the same information.
- Still, we need someone to stand above the whole process – someone above the network who can exercise control.
    - If this doesn't happen, we get people who sit in on the meetings and only represent the interests of their organization, while no trade offs are made and the real problems remain.
- There has to be a willingness to incur short term losses in exchange for long term gains.
- Is there something really new? I think a couple of things are new:

  - The number of wicked problems we facing and the frequency with which we are facing them are growing.
  - In the past, the time frame in which these problems could work themselves out was longer.
    - As a consequence, the pressure on leadership is increasing.
    - The pressures on society in general are also increasing.
- We need to help out the leadership today. How do we help them out? With technology.
  - The leadership needs to empower subordinates and surrender some of its authority because it is just too hard to handle 20 or 30 wicked problems that come across your desk.
  - We need people to understand that the problems are so serious that they have to set aside some of their organizational equities.
    - The Army IED Task Force is a good example of this. Soldiers are dying in Iraq, so people stopped fighting for turf and gave up some authority so they could start networking and save lives.

Using the Information Revolution for Success in Stability Operations

Stewart Starr
Center for Technology and National Security Policy (CTNSP), National Defense University (NDU)

Starr:

- I am going to discuss stability operations and how we can bring netcentricity to bear upon them. Netcentricity: do electronics matter? We think they do. But it is the technology as well as the information that is important.
- One caveat: netcentricity must be employed as part of a larger strategy.
- We are focused on taking failed states and making them into stable states.

- Hypothesis: Information and Information Technology (I/IT) can significantly increase the likelihood of success in stability operations – *if* they are employed as part of an overall strategy that
  - Coordinates the actions of outside interveners
  - Focuses on generating effective results for the host nation
- Key Definitions
  - **Harmonization** refers to having the outside interveners work in a generally coordinated fashion
  - **Alignment** refers to having the outside interveners align their activities with the interests of the host nation
- Proposed Information/Information Technology (I/IT) Strategy
  - The US Government must
    - Make the I/IT strategy a *mandatory* element of all stability operations
    - Ensure that the effort is a joint civilian-military activity
  - The military must make I/IT part of the planning and execution of the stability operation
  - The preplanning and the establishment of I/IT partnerships must be undertaken with *key* regular participants in stability operations (e.g., UN)
  - The focus of the intervention must be on the host nation
  - The key I/IT capabilities must be harnessed to support the goals of effectiveness, harmonization, and alignment
- Implementing the Strategy will include…
  - Development of an *information business plan* to
    - Harmonize among outside interveners
    - Enhance effectiveness and alignment for, and with, the host nation
  - Agreements among interveners on data-sharing and collaboration, including data-sharing on a differentiated bases
  - Use of commercial IT tools and data provided on an unclassified basis
- Harmonizing Among Outside Interveners
  - *Pre-planning* is vital, including
    - Joint civil-military information planning
    - Better use of technical means (e.g., the Internet)
    - Development of an implementation strategy
    - Improving data usability

- Achieving Effectiveness and Alignment
  - A viable information business plan must include
    - An assessment of the host nation, including
      - Information needs
      - Information environment (e.g. laws, regulations, culture, infrastructure)
    - The establishment of time-phased information goals (initial-, mid-, long-term) that support the overall goals of the host country
- Key Questions
  - How does an I/IT strategy for stability operations relate to what else is happening in the intervention?
  - What is the relationship between an I/IT strategy and strategies for security, humanitarian needs, economic development, and governance/rule of law?
  - How should one manage the I/IT strategy (e.g., establish a forward field organization?)?
- Summary
  - Coalition participants in the I/IT strategy should undertake five key activities
    - Conduct pre-event activities with partners
    - Implement improved collaboration
    - Ensure improved data usability
    - Develop an information toolbox
    - Create a forward field information office
  - If an information business plan is to be generated that satisfies the needs of the host nation, it will require
    - Assessing host nation information capacity
    - Establishing a host nation information goal
    - Creating initial-, mid-, and long-term information capacities
    - Analyzing information needs, developing methods to fulfill those needs

- When you try to get heterogeneous people together without preplanning, it is a very daunting task. We need preplanning and partnerships in place beforehand. Even if new, unanticipated actors arise, the known ones will have agreed upon terms, definitions, culture, approach, etc. Information technology must be harnessed to support this.
- We argue that you need an information business plan.
  - Not everybody is equal in this matter. Some information isn't meant for everybody.
  - However, a lot of information is unclassified and we want to share it broadly.
- And we want to build on the internet.
- For stability operations, the host nation has to think carefully about information. Information is to be an enabler of doing things like enhancing economics performance, security, rule of law, governance and things of that nature.
- We have to avoid mirror imaging.
  - Just because certain circumstances prevail in the United States doesn't mean they will prevail in Somalia or Afghanistan.
  - We need to tailor things to meet the needs of the host nation.

Fuerth: In 1992, the Russian Federation was a collapsed state for all practical purposes. So too was Yugoslavia. And of course there were many in Africa. What we found was that we didn't have a systems analysis modeling of what it would take to provide these states with some level of vitality. Plus, information systems were not in place for players on the ground. No where was there a composite picture of what was taking place; leadership on the ground had nothing to plug into to understand what was happening or where things were going. So, looking backwards, we need information systems.

Part II – Discussion

Leon Fuerth:

- When dealing with complexity: prediction is not possible, but foresight is mandatory.
- The policy system is currently not listening to foresight.
- What is this meeting relevant to? I have a project: Forward Engagement. This project has a number of objectives, one of which is to influence expert opinion. Your presence here means we are succeeding to some degree.
- Three Societal Tsunamis
    - 1) The transfer of political and economic power to Asia at a huge level of profundity.
        - The shift of economic and technical leadership to nations that are essentially non-democratic.
    - 2) Evolutionary Secession. We will change ourselves as human beings for various reasons and forever.
        - Altering the germ stock of the human species
    - 3) Environmental Dislocation—the threat of global warming.
- The goal here is to figure out a system of management for complexity.
- Parametric management: my concept of the management style that must exist in any one of the networked systems we are contemplating.
    - Creating more decentralized networks in government (in terms of government agencies) so you can create more shared awareness

Colonel Robert Ballew:

- Natives vs. immigrants [to the Network, to information technology]
- Blue Force Tracker: a satellite-based tracking system that provides me with a readout of where my assets are on the battlefield
- The network in my view is just a tool in the toolbox. That's all it is.
    - You have to understand how to take full advantage of that tool and make it work for you.
    - It starts with immigrants like myself. They have to be made to understand [information technology].
- We have a couple natives in the room [indicates students]. The new generation is more in tune with networked technology. Eventually, they will bring IT into the fold.

Bing West: The U.S. military took the Napoleonic hierarchy, which was designed because a) you needed lots of commanders because the commanders kept getting killed; and b) you couldn't be heard outside of earshot. The U.S. military hierarchy has not been fundamentally altered since the Napoleonic age.

By the way, we are losing in Iraq and IT has not made one God damn bit of difference. I've been to Iraq 12 times now. I've spent a total of 14 months there. I hear one universal complaint: the hostility toward staffs and computers. I'm told "my guys are turning off their computers and claiming that they're not working". Guys out in the field are taking two to three days a week just answering the mail. There are four star generals out there who are demanding to see everything that is going on and using computers to do it. They are using IT to further empower the hierarchy, the wrong approach. They are using internet and computers to become micro-managers and more hierarchical, not networked. Now-a days everyone has a laptop and

it's quiet cause people are using radios less and less. They have Blue Force Tracker. They download video readouts of the battlefield from UAVs [unmanned aerial vehicles]. Battalion commanders are moving forward, out to the front, because they are confident can get the information they need from trained staffers using IT. So now they are going where they please, running things via the info relayed to them by their staff.

Fuerth: Networks don't always work out. Modern technology can be used to buttress the old style of management.

Ballew: The network is more than just a computer. It is more than some staff geek hooked up to a computer.

Richard Hayes: It isn't just about having a network in place. It's about understanding how to use it.

Claudia Pharis: You can build and install networks or you can discover them. They exist whether we know it or not.

- Three structures of thought I find useful:
  - 1) Attribute Theory
  - 2) Network Theory
  - 3) Complexity Theory
- Power to the network really means power to the edge.
  - But this can be dangerous without commander's intent. Power to the edge is a great concept but it only works with coordinated commander's intent.
  - If you have power to the edge without commander's intent you have chaos.
    - We are pushing leaders to the edge. Information technology enables this.

Ballew: The culture is changing underneath us. The younger generation is going to change things. Natives have it, immigrants need to learn it.

Fuerth: We are interested in changing the way whole societies in the Middle East think about governance. We want Iraq to embrace democracy at the popular level. How do you inculcate democracy in a culture that doesn't understand what it means? How does this all apply to public diplomacy?

Ballew: The insurgents in Iraq are natives [to network-centric warfare]. They are better with information and disinformation. They know how to influence the populace and how the populace reacts to us. They are better than us with all of our technological power.

Pharis: You can't change the culture; it's ingrained. We have to find points of access for changing minds.

Mark Notturno: Not so. We teach kids logic. Teaching can make a difference. We teach them to think differently than they are used to.

Lisa Kimball: The key is to maximize the number of stakeholders, to make a larger number of people have an interest in a positive outcome.

Pierre Chao: This is really about kill mechanisms. What we lack in government today are efficient kill mechanisms to take all the information from these funnels and narrow it down to what is relevant to decisionmaking. We need to weed out the bad ideas and let the good ones in.

Kent Myers: Just appeal to the person's excellence and they will run with it. The rest [bad ideas] will be suppressed just because you're not paying attention to it.

Henry Farrell: You need a sorting mechanism apart from the complex system in order to make all this information useful. You need some kind of hierarchy, someone who says the buck stops here.

Richard Sawaya: The problem is government structure itself. We have no gasoline tax in spite of everything that's happening. A gasoline tax is very unlikely because of the way legislative process works. How do you get a network that solves that?

Fuerth: How do we engineer attitudinal change? It doesn't happen by accident; it happens as a result of intent. You can't rely purely on complexity theory to govern the lives of millions of people. You need concrete operational experience.

Patrick Gorman: Power toward the edge means sharing power. It also means sharing economic and technological power. Asian countries might get a hold of this and compete with us in ways we might find difficult to deal with.

Hans Binnendijk: So why don't we sum up the major advantages of the network: we gain time, we gain place – Bing's point – and we gain numbers in mobilizing, after informing, greater numbers of people. Our adversaries are using this now. That's what Al Qaeda is – commander's intent, power to the edge. Education makes a big difference. People must know how to utilize the tools of netcentricity.

Kimball: The formation of commander's intent is a networked process as well.

Fuerth: In complex systems, the behavior of the whole is a product of the behavior of the individual parts. In hierarchical systems, the behavior of the whole is ordered by rules or laws. How do we manage complexity in a democracy? Opinion forms at the edge where sovereignty is placed, in the hands of the people. My concern is to keep our skins but still ensure that sovereignty remains with the people. In other words, how do we can engage complexity using networked governance but keep that governance democratic and accountable to the people?