

Cooperation and Coordination in an International Intervention: The Use of Information and Communication Technologies in Kosovo

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Abstract

In international interventions that encompass peacekeeping, democratic transition, and institution building, one organization cannot do it all. In Kosovo several organizations—the United Nations (UN), nongovernmental organizations (NGOs), the Organization for Security and Cooperation in Europe (OSCE), the militaries (KFOR), and an international police force—formed a temporary network organization, the United Nations Mission in Kosovo (UNMIK), in which they worked together cooperatively at every level to pursue the goals of the mission. This research, based on fieldwork in Kosovo with all the organizations in UNMIK, investigates how well the use of information and communications technologies (ICTs) reflected the organizational structure and design of the mission. What does this experience tell us about the use of ICTs in an interorganizational setting? What does it tell us about information transfer and knowledge sharing in a temporary network organization that comprises organizations of diverse structure and culture? The information and communication infrastructure of UNMIK is examined to discover how well it met the organizational requirements of both the participating hierarchies in the mission and the emerging network organization. The question in Kosovo was whether the introduction and use of new technologies helped the organizations move from a hierarchical structure and culture to a more collaborative one.

Introduction

In 1999, the United Nations (UN) established an interim international administration in Kosovo (formerly part of Yugoslavia, now part of Serbia), following the end of North Atlantic Treaty Organization (NATO) air bombings and the withdrawal of the then-Yugoslav forces. The Security Council vested in the UN administration unprecedented authority over the territory and people of Kosovo, including all legislative, executive, and judiciary powers. Under the umbrella of the UN, the European Union (EU), the Organization for Security and Cooperation in Europe (OSCE), NATO (as Kosovo Protection Force [KFOR]), and the UN along with the people of Kosovo embarked on a mission to create a functioning, democratic society with substantial autonomy within the Former Republic of Yugoslavia or, since April 2002, Serbia. In each of the 29 municipalities of Kosovo, the turbulent environment, the temporary nature of the mission, and the goals of the mission required

all of the international organizations to work together with the local community to maintain the peace and build sustainable democratic institutions.

The mission was divided into four main components, each led by a different organization. First, a civil administration component, led by the UN, was created to handle public administration and civil affairs (in particular, to revive health, education, and other public services). Second, an institution-building component, led by the OSCE, assumed the tasks of promoting democratization and institution building, elections, and human rights. Third, there was a law-and-order component led by the police and covering judicial affairs. In the immediate aftermath of the conflict, the police were under Pillar II. This pillar was the humanitarian component, led by the UN High Commissioner for Refugees, and it took responsibility for humanitarian assistance. Fourth, a reconstruction component, led by the EU, was put in

charge of the reconstruction of key infrastructure and other economic and social systems, including the development of a market-based economy; the coordination of international financial assistance; and the resolution of trade, currency, and banking matters. A variety of NATO and affiliated militaries provided the security component as KFOR. In addition, each of the international organizations worked with local Kosovar counterparts—the local municipal administrations and government structure, local police, local nongovernmental organizations (NGOs), and local state-owned companies. (See Table 1 for a guide to acronyms used by organizations in the international intervention in Kosovo.)

In international interventions, organizations with distinctive organizational structures and cultures, with very different forms of authority structures and standard operating procedures, need each other in unprecedented ways and to an unprecedented extent. On the one hand, one hierarchical organization cannot do it all. On the other, the transaction costs of these organizations getting together to solve only minute crises are too high. The unique challenges of such interventions can only be met by a network organization as each of the organizations has unique resources and capabilities that the others cannot duplicate. I contend that hierarchical (vertical) procedures and organizations' capacity to work independently—behind walls—are being supplemented if not replaced by horizontal structures that are crucially facilitated by formal and informal linkages and networks—webs—among the organizations. In short, the United Nations Mission in Kosovo (UNMIK) is an example of nonprofit organizations coming together to form a temporary network organization (Powell 1990; Nohria and Eccles 1992; Arquilla and Ronfeldt 2001).

Information technology is a critical enabler in the existence of a network organization. Once this enabling factor is there, a network organization can allocate resources more efficiently, performance is improved, and the goals of a multidimensional mission are attainable. Information-adaptive organizations tend to succeed in fluid environments such as that of postconflict reconstruction; more traditional bureaucratic organizations tend to respond less creatively and more slowly, which threatens the success of the overall mission. But network organizations are more than electronic networks, and technology only provides certain "affordances" (Bockowski

2001) that will not be realized without an organizational structure and an institutional culture appropriate to the temporary network organizational form. Actors participating in a temporary network organization need to deal with more than the information and communication technologies that bind them together. I contend that information and communications technologies (ICTs) *do* play an important role in network organizations, but what shape their role takes is an emergent (Fulk and DeSanctis 1995) phenomenon. Organizational design and ICTs are evolving together and influencing each other, with consequences for mission success. If we understand what facilitates and inhibits effective use of ICTs, that understanding can contribute to our understanding of what makes for a successful network organization in the context of an international intervention.

My research contributes to the literature and knowledge in three ways. First, research has focused on the rise of networks in businesses and industries or in social movements, but not in the nonprofit sector involving traditional hierarchies such as the military and the UN agencies. Second, research on the role of ICTs has been primarily conducted in laboratory settings or within one organization, with little empirical research on how a network organization comprising diverse organizations and with an electronic network actually works. Third, there is little documentation of organizational behavior and the use of ICTs in interventions that comprise institution building as well as security. My research documents the use of ICTs in a real-world setting; how the diverse nonprofit organizations composing UNMIK worked together as a temporary network organization. This research examines the role ICTs played in the network organization of international hierarchies working in Kosovo between 1999 and 2001.

The goals of the mission in Kosovo are to maintain peace between the Serbian and Albanian communities and to work with both to (re)build the infrastructure and institutions of Kosovo. I contend that the collective ability of the organizations to attain these goals was determined by the existence of: interorganizational structures established for this purpose, the appropriate use of the appropriate information technology, and an institutional culture that facilitated their capacity to work cooperatively. Their ability to work cooperatively was determined

Table 1. Guide to Acronyms Used by Organizations in the International Intervention in Kosovo

Acronym	Meaning
UNMIK	United Nations Mission in Kosovo
KFOR	Kosovo Protection Force
NATO	North Atlantic Treaty Organization
UN	Used as shorthand to refer to the United Nations Civil Administration in Kosovo, which is under the auspices of the United Nations Secretariat in New York
OSCE	Organization for Security and Cooperation in Europe
EU	European Union
NGO	Nongovernmental organization
MA	United Nations municipal administrator—most senior person in UNMIK in each municipality
DMA	Deputy municipal administrator
ICT/s	Information and communication technology/technologies
CIVPol	International Police Force
KPS	Kosovo Police Force

by (1) the degree to which trust was established between them, which in turn optimized (2) identification with the mission overall rather than with just their own organization. It also optimized (3) the transfer of fine-grained information and (4) the ability to jointly solve problems.¹ The appropriate use of the appropriate information and communication technologies was affected by, and in turn affected, these four factors and sheds light on the relationship between ICTs and the network organizational form.

There are three levels in the international mission in Kosovo: center, regions, and municipalities. The center is in Pristina, the capital of Kosovo; there are five regions, and within each region are 5 or 6 municipalities, for a total of 29 municipalities in Kosovo. The 2 municipalities in which I conducted my research, Banskik and Thezren,² are in the same region, are comparable demographically and geographically, and were similarly devastated during the war. Since the war ended in 1999, the same set of international actors has been working in both Banskik and Thezren. Both municipalities have had the required structures for cooperation in place, that is, interagency meetings, and were working under the same mandate or goals. Besides being part of a

network organization at the municipal, regional, or central level, each organization was part of its own organization's hierarchy (see Figure 1). I conducted 800 hours of focused and participant observation of the day-to-day interorganizational activities and interaction in Banskik and Thezren. Focused observation was the most effective, as it enabled me to move freely among different organizations and among different levels within organizations in my capacity as researcher. Full participant observation in one of the organizations would have compromised my neutrality and restricted my movements. I also conducted 44 in-depth interviews and 20 minor interviews, and attended 15 key meetings. The focused observation included observation of each organization's use of technologies. Every interview included questions on the practice or use of the range of ICTs, their use on and off the job, and attitudes toward technology. I conducted a content analysis of daily and weekly reports in the UN and OSCE, and reports from all organizations.

Previous Research

Information flow and information technology have always influenced the form of an organization, from the pen and paper, to the telephone and telex, to

1. Adapted from Larson (1992) and Uzzi (1997).

2. The names of people and places have been changed to preserve confidentiality.

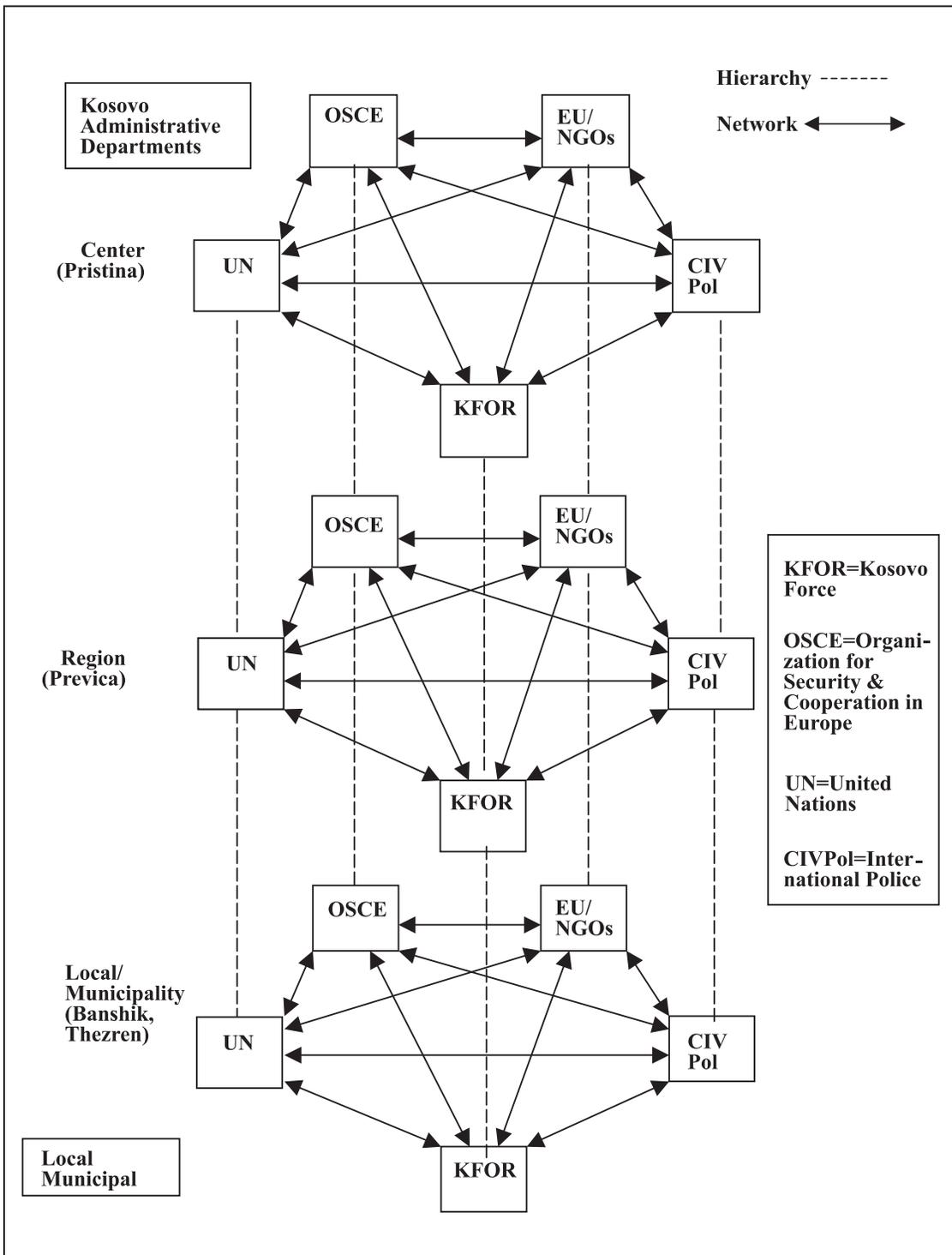


Figure 1. Hierarchy and network organization of United Nations Mission in Kosovo.

the PC and internal network, to e-mail and the Internet. Indeed, formal hierarchies have served the purpose of coordinating and making more efficient the flow of information in organizations (Simon [1947] 1976). This was accomplished through a division of labor in which functionally specialized units and unity of command constrain communication flows to those defined by the chain of command (Galbraith 1973). By limiting communication so that orders flow down and information flows up, organizations became more orderly and efficient. In hierarchies, managers were warned to constrain informal communication that could undercut managerial control and disrupt smooth organizational functioning (e.g., Katz and Kahn 1978). However, norms of not sharing across hierarchical boundaries resulted in a limiting of the amount of expertise that flowed upward and laterally inside organizations.

The role of knowledge and information in network organizations is significantly different: efficiency in a turbulent environment where network organizations are most suitable requires free flow of communication. This free flow requires flatter structures, an emphasis on expertise not status, and the facility to allow knowledge to go to where it is needed. Thus, hierarchical organizations participating in international interventions that are network organizations have to grapple with ICTs in two ways: (1) externally as part of the network organization through the use of ICTs by the overarching temporary network organization, and (2) inside their own organization. To be able to function in an external network organization, the participating hierarchy must acquire or develop certain internal characteristics of a network organization.

The flexibility and responsiveness of the knowledge-based and network organization is essential in the turbulent environment of postconflict interventions. Organizations working as part of a temporary network organization, both in the initial set-up period and later with constant rotation of personnel in and out, have to cultivate an environment that facilitates exchange of information and swift learning, as all the knowledge they need is not available within their own organization. Research on the development of the successful start-up companies stresses networks as a means for quick access to resources and know-how that cannot be produced internally (Larson 1992; Nohria and Eccles 1992).

However, research on strategic knowledge management has predominantly focused on cognitive processes *within* a firm's boundaries (Nonaka and Takeuchi 1995) but not the processes transcending them. These processes include creation of knowledge, making tacit knowledge explicit (Nonaka and Takeuchi 1995), knowledge transfer (Szulanski 1996), and knowledge integration (Grant 1996). Knowledge sharing is "the transfer of useful know-how or information across company lines" (Appleyard 1996:138). This research investigates knowledge sharing in a turbulent environment among organizations that have very different structures and organizational cultures but that share common goals. In Kosovo, the high turnover of personnel also required networks as the optimum means for quick access to resources and know-how outside their own organization. Just as in the private sector, where firms have had to become more responsive and flexible and to focus only on the part of the supply chain they do best, subcontracting or joining alliances or networks for the rest, so too have nonprofit organizations had to realize that one organization cannot do all the tasks required in increasingly complex situations such as humanitarian operations. The hierarchies in Kosovo were struggling to make this change. The degree of success with which they were adapting their internal organization had a great impact on their ability to participate in the network organization of UNMIK.

However, how hierarchical organizations introduce technologies and how the organization responds to them are not predictable. Little is still known about how technology is actually used in organizations, and as Bockowski (2001) points out, technology only "affords" certain potential uses (intentional and unintentional), but it is the institutional setting that determines whether these affordances are recognized. Although "networked firms are usually conceived of as communication rich environments, with information flows blurring traditional intra-company boundaries" (Rockart and Short 1991:191), as Nohria and Eccles (1992:289) point out, "Networked organizations are not the same as electronic networks nor can they be built entirely on them." Working relations in the networked organization are embedded in a social context made of culture, social norms, practices, habits (Zack and MacKenny 1995); in short, the institution

of the network organization is critical, and this institution is itself a hybrid of the network and the hierarchical institutions, as most networks are in reality a hybrid of hierarchies and network (Arquilla and Ronfeldt 2001).

It is clear from work on the impact of technology on firms that the introduction of new technologies can significantly affect an organization's internal and external relations (Orlikowski 1995). Early research in computer-mediated communications was individualistic and technology deterministic, and it assumed a single person was rationally choosing among media (Lea et al. 1995). In recent years, there is a shift toward considering how social relationships, organizational structures, and local norms affect the use of communication media (Finholt and Sproull 1990; Orlikowski 1995; Huber 1990; Markus 1990, 1994; Sproull and Kiesler 1991; Zack and MacKenny 1995). A lot of computer-mediated communications research is conducted in laboratory settings, where the use of the Internet by a group of people gathered together in the laboratory setting is observed. But sociological research also needs to conduct empirical studies of real-life settings, taking into account the social characteristics of participants, their positional resources, the interplay between ongoing online and off-line relationships, and their ongoing social relationships (Wellman et al. 1996). For instance, laboratory studies of the use of the Internet and intranet do not capture the important role played by them in supporting work relationships in sparsely knit, loosely bounded organizations whose members switch frequently and routinely among the people with whom they are working during the day, as they move between projects or need different resources (Fulk and DeSanctis 1995; Kling and Jewett 1994; Koppel et al. 1988; Wellman et al. 1996). Kosovo had just such a sparsely knit, loosely bounded network organization, and this study explores the role, actual and potential, that ICTs played in that situation.

Thus, the hierarchies in Kosovo had to contend with internal changes demanded by: (1) being part of a temporary network organization and (2) the changes being wrought by ICTs. Both demanded a shift in thinking about organizational structure, information exchange, and knowledge management. This research documents the impact of ICTs on the diverse organizations working as a temporary network organization in a situation where the goals are peacekeeping and institution building.

Analysis

The Role of ICTS in UNMIK

The Physical Network

As several analyses of network organizations in the business sector demonstrate, permeable boundaries are intrinsic to a network organization both within the organizations participating in the network organization and between the organizations composing a network organization (Applegate et al. 1988; Jarvenpaa and Ives 1994). Management is less hierarchical, deriving its authority from expertise rather than rank. This comes from network output, or achievement of its goals, which demands a high degree of intangible, local, or specialized knowledge. Communications need to be direct, whereas multiple weak ties enable early knowledge of emerging problems. All of this requires a physical information and communications network as point-to-point communication integrates borders between groups. This is necessary within the constituent hierarchies also, as to be part of a network, an organization must itself be networked. When computer networks link people as well as machines, they become social networks or a computer-supported social network (Wellman et al. 1996).

The use of ICTs and the network organizational design were coming together in parts of the network but had yet to incorporate the full network organization. I found that the design of ICTs did not *closely* correspond to the organizational design of the network organization of UNMIK—the four pillars and KFOR (see Figure 2). The UN civil administration, the international police, and the EU shared communication resources and thus had a common or shared communication space. However, OSCE, the NGOs, and KFOR all had their own separate ICT infrastructure, and the ICTs of the local police (KPS) and the local municipal administration were minimal: a basic radio network among the police and the (practically nonexistent) local telephone system in the municipal administration.

The UN provided a radio and satellite communications system for the UN Civil Administration, the EU, and the international police, CivPol. There was a hand-held and car radio network, consisting of “Motorolas” as they are called after the company that manufactures them. More powerful radio links were used to provide some of the Internet access, including in Banskik, possible because there were no geographical barriers between it and the radio

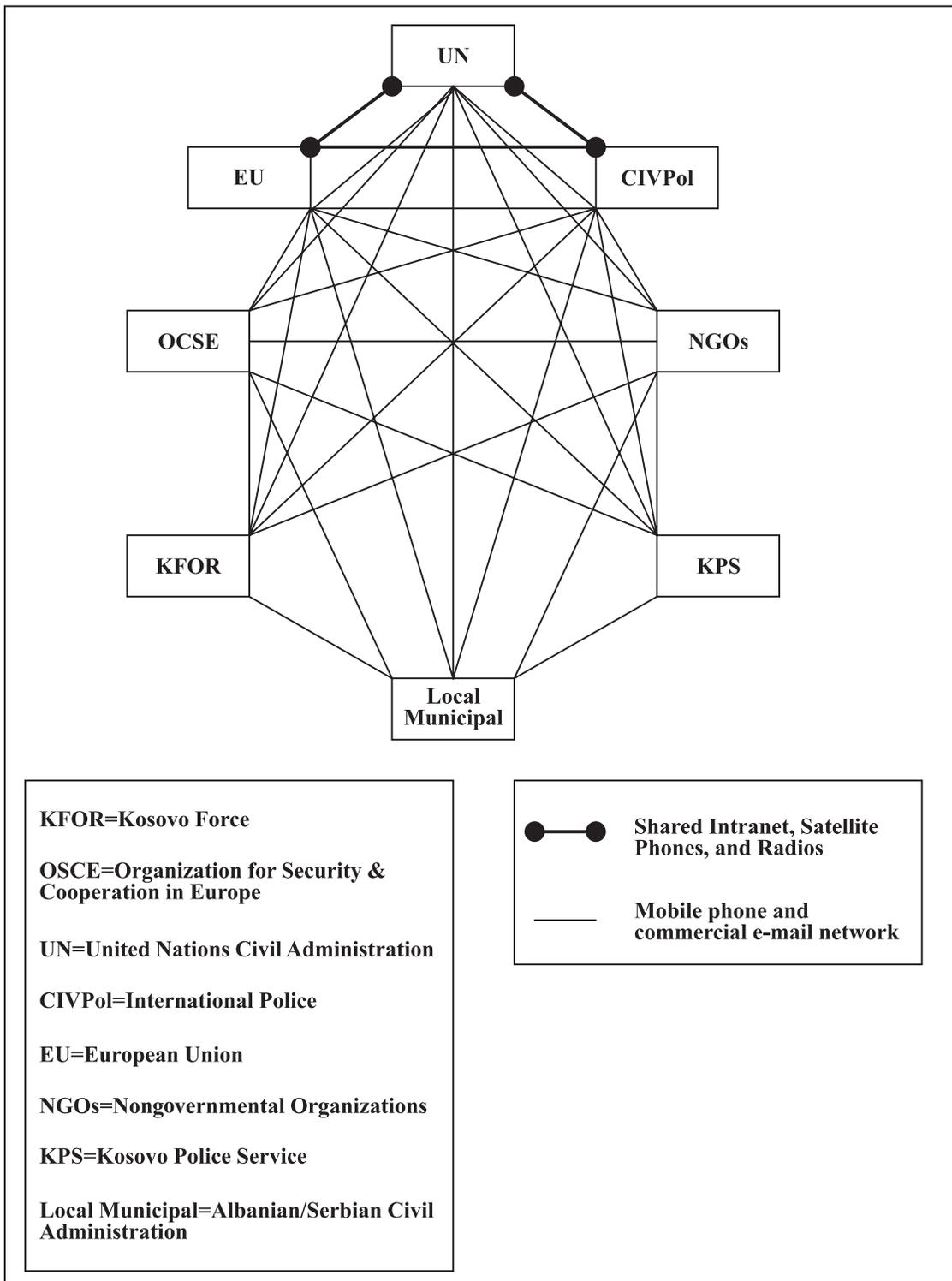


Figure 2. Communication technology infrastructure in Kosovo.

signal coming from the UN regional office in Preveca. The UN also leased space on a satellite to supplement the communication needs of the mission. It put satellite dishes where it was necessary politically and geographically; each regional office, including Preveca, had a satellite, as well as some municipalities such as Thezren, where there was a range of mountains blocking the radio signal. The radio link was used wherever possible, as it was considerably cheaper; each satellite dish cost US\$250,000. There was a limited number of wire or cable connections used, only over short distances and within UN compounds to ensure they would not be damaged. Each UN office had at least two and up to four satellite phones (V-SAT phones), but in practice most phone calls were made using mobile phones as the V-SAT system was restricted to the communications network supported by the UN and was less convenient—their position was fixed in the public part of the office and the UN municipal administrator's office so one could not call from one's desk or in private.

The UN intranet³ and access to the Internet were limited to the same organizations supported by the radio and V-SAT phone network. When the mission began in June 1999, the Internet was only available in Pristina and Preveca. Staff working in the municipalities were assigned an e-mail account but had to drive to either Preveca or Pristina to access the UN intranet on Lotus Notes. The Internet was finally extended to the municipalities in early 2001.

Access to the UN's intranet was limited to UN civil administration international staff, EU international staff, and the UNMIK international police. To access this system, each person had to have an unmik.org e-mail address. The messages on the intranet were generally information notices about security warnings, travel advisories, social events, and welfare issues.

OSCE had its own ICT infrastructure that mirrored that of the UN: it had a Motorola radio system, V-SAT phones, and an intranet and e-mail system, with the address omik.org. The OSCE intranet was more comprehensive than the UN intranet. In the OSCE intranet, a user could access almost all bureaucratic forms in the organization,

fill them out online, and submit them to the relevant office. It also included travel, security, and social advisories. The OSCE staff in general did not use e-mail with other organizations on the ground.

KFOR also had its own ICT infrastructure, but it did not include an intranet or e-mail for use in the mission. Within the military, radios were used internally, but face-to-face interaction was the primary means of communication among members of the military and other personnel in the mission.

NGOs looked after their own ICT needs: they used Internet service providers (ISPs) in Pristina or Belgrade. They did not use e-mail with other organizations on the ground in the mission but did use it with their home offices and their donors, some of which were based in Pristina, some outside Kosovo.

Thus, the design of the electronic or communications network did not correspond to the organizational design of the mission, and the computer-supported social network (Wellman et al. 1996) was not equivalent to the network of the mission. It incorporated three hierarchies (UN civil administration, CivPol, and the EU) but did not include the OSCE, KFOR, NGOs, or the local police or municipal administration. The inclusion of three hierarchies indicates that the mission planners were cognizant of the need to get the communications network and organizational network to correspond as closely as possible, but logistical and political factors intervened with KFOR, OSCE, NGOs, and the local police and local municipal administration. OSCE chose not to share the same communications infrastructure, wanting to maintain more control over its internal communications and viewing the UN as slower and hence possibly difficult to work with if OSCE were dependent on them for communications (H. Gesing, November 8, 2001, personal interview). KFOR cited security as the reason for wanting to maintain its own internal communication and information structures, and the NGOs were not given the option to become part of the UN infrastructure.

Limitations of ICT Infrastructure

Besides the limitations imposed by the physical design of the network to using ICTs, there were limitations to the optimal use of ICTs that were peculiar to the environment and applied to all organizations.

3. An intranet is a private organizational network based in the UN case on the proprietary Internet tool of Lotus Notes. Lotus Notes is an example of what is known as groupware (Johnson-Lenz and Johnson-Lenz 1978) software that enables all members of a bounded social network to receive and read e-mail messages from anyone in the network.

The lack of a working telecommunications system in Kosovo meant that all equipment had to be shipped in from outside. The capacity of all organizations' Internet link and the speed of it were limited because of the use of radio and satellite signals. E-mail attachments beyond a very small size could not be sent over the Internet or intranet, and when there was a power-cut (three or four times a day typically), the connection would be lost along with anything the employee was working on at the time. This was a significant reason why employees kept their time e-mailing to a minimum.

A further limitation to the optimal working of the physical ICT infrastructure was the assumption on the part of organizations that their employees would not only be willing to use e-mail but also that they were able to use it. Certainly in Kosovo, in the UN, the OSCE, the NGOs, the EU, and the international police, there was an assumption that each person knew how to use the Internet and e-mail. In the UN, initiation for new employees included a brief meeting with the information technology (IT) department at the regional level, where they were assigned a computer. The process of getting an e-mail address tended to be longer. Although there was training available, the assumption was that if someone needed training they would ask; it was not offered. This is potentially problematic for older, less technologically acquainted personnel as they might be reluctant to admit they do not know how to use it or they might not see it as important, and hence not avail themselves of what training there is. Shamon, the municipal administrator (MA) in Thezren, expressed his belief in the importance of technology (S. Shamon, October 12, 2001, personal interview) and said he had been using e-mail and the Internet for some years. Yet Hideyaki, the most junior member of the UN staff in Thezren, told me that each morning he had to print out the main news headlines from the Internet for the MA, the MA would choose from these headlines, and Hideyaki would print out the articles because "the MA doesn't know how to use the internet" (T. Hideyaki, October 11, 2001, personal interview).

This was less of an issue for the OSCE as it has a different employee profile—younger, more diverse backgrounds, not part of a permanent structure

with its tendency to IT obsolescence. Training in the OSCE was also given a higher priority, as so much of the organization's internal workings were dependent on using the intranet. The NGOs and militaries also had a younger age profile and more technical knowledge and training. The NGOs saw IT as critical. Tim, a 27-year-old architect working with the NGO K-LED, said, "We couldn't do our jobs without it."

A final limitation to the optimal use of the physical network design was the views or attitudes of the personnel of the different organizations as to what could be achieved using e-mail, the intranet, and the Internet. The hierarchies' focus on using ICTs within their own organizations but not between them was not readily recognized, reflecting and reinforcing the low level of identification with the mission as a whole compared with identification with a worker's own hierarchical organization. There was an emerging cognizance of the limitations of the physical infrastructure. Such a shared infrastructure was seen as forthcoming and as a potential resource that was not being used. Gheyntanchi, the deputy UN MA in Banskik, said: "I'm not communicating through IT with other organizations yet" (his emphasis; M. Gheyntanchi, October 21, 2001, personal interview). Although almost every UN employee extolled the advantages of using e-mail and the Internet within their own organizations, only Gheyntanchi and Henry (UN local community officer, Thezren) spontaneously lamented its lack of use for communicating with other organizations. Henry commented, "There is no exchange of e-mail between the agencies and that's a pity. The police, OSCE, KFOR, all these people have e-mail, we could work much more closely" (S. Henry, November 3, 2001, personal interview).

Consequences of the Design and Use of the ICT Infrastructure in UNMIK

The consequences of the physical network design were significant for the ability of the organizations to be a network both within their own organizations and with the other organizations in the mission. Each of the hierarchical organizations displayed a degree of "organizational imperialism"⁴ as they refused to share costly assets and resources, which in turn inhibited their ability to interact as a network

4. The concept of "organizational imperialism" captures each hierarchical organization's desire to control its environment for its own benefit and at the same time to protect its own interests.

organization. Although each organization wanted and needed it to be a network, they were not willing to share certain assets.

KFOR was particularly set apart, as it had a completely separate communications system from UNMIK. Murali, who was in charge of IT infrastructure for the UN in the Preveca region, spoke of the logistical difficulties this gave rise to. He said in disgruntlement: "Our communications system is totally separate from KFOR. They do not even let us into their base camps. We do have some of our equipment in there but we are not allowed to go in without liaising with the KFOR liaison officer here on the third floor or the UNMIK Military Liaison Officer.⁵ But it can take two hours or more to do that, so this can be problematic. KFOR does not want to hook into our communications system. They want to be separate for security reasons" (A. Murali, October 23, 2001, personal interview). Besides the occasional difficulty of the maintenance of the equipment stored in the KFOR base, the lack of a link between the KFOR communications system and the UN system was a nuisance at the local level. In general, the KFOR liaison officers did not have a cellular phone or an e-mail address that could be used for liaison business. However in Banshik, two French liaison officers had taken the initiative and gotten hold of a mobile phone that they shared and used in their work. A French Foreign Legion officer working in a civilian-military relations capacity with the local community also used commercial e-mail to set up appointments. But for most of KFOR, the only point of contact within their own military and with other militaries and organizations was a face-to-face encounter. This could be done at weekly 4 Pillars or inter-agency meetings held in each municipality, but outside of that was more problematic and depended on individual initiative on both the military and nonmilitary organizations' part.

International and Local Communication and Cooperation. The difficulties of enforcing separation of resources when the organizational boundaries are blurred were apparent in the sharing of equipment by CivPol and the local Kosovo Police Service (KPS). They shared the same building and the same offices, and they worked together in teams. Yet, officially the KPS personnel

were not permitted to use the UN radios or Internet. Murali, in the UN office in Preveca, said, "You have a situation where an UNMIK international police officer and a KPS officer are sharing the same room and of course, the KPS uses the UNMIK phone and sometimes radio. But if I get a request for another V-SAT phone I go to the place myself to see who is in the office, if it is a KPS, I cannot give another phone" (A. Murali, October 23, 2001, personal interview). This had the unfortunate consequence not only of making coordination more difficult but also of reducing the shared sense of mission that is intrinsic to the production of trust, ease of information transfer, and joint problem solving.

Having uncoordinated media of communication reduced the degree of responsiveness of the network. I was driving with Magan, the Banshik MA, to Pristina when we came upon a traffic accident. Magan did not have a direct link to the KPS as they did not have the use of UN communications equipment. He called on the radio in the UN car to CivPol in Banshik, who then told the KPS, who sent a car to the scene. The road was blocked as a result of the crash and there were no injuries; however, the delay due to the circuitous route to the police could potentially have serious consequences in a security situation, for instance, in a riot or potential riot-producing situation, neither of which was uncommon in Kosovo.

Cooperative Problem-Solving. The absence of point-to-point communication between key organizations, the vertical integration of key assets within KFOR, and the low level of trust produced a potentially violent situation in the mixed Serb and Albanian village of Slavina in the municipality of Banshik. The KFOR engineering battalion had been told by their central command to undertake more engineering projects for the Serb population, as they did not want to be perceived by the Serbs as pro-Albanian because of their existing projects with the majority population. The engineering battalion, under the tutelage of an officer designated with the task of liaising with the UN Civil Administration in Banshik, proceeded to dig a trench for a water pipe, which the Serb residents asked them not to do without consulting the Albanians. The liaison

5. The difference between the two is that the former is employed by KFOR and the latter is a UNMIK employee, one of the famed "blue berets." KFOR personnel do not wear the blue berets of the traditional UN peacekeeping units.

major had not consulted with the UN Civil Administration, and the local Albanian village leader, in a nice illustration of nontechnical point-to-point communication, immediately fetched Magan, the Banshik UN MA, to stop him. The importance of point-to-point communication is especially critical when the conception and execution of tasks is decentralized to the local level. Unorganized, ephemeral, and specific local knowledge is needed as this favors the distributed decision making of network organization. The major insisted to the MA that he had to follow his orders from the region and proceed with the project, even in the face of opposition of both communities. Administrative fiat within KFOR ran up against the local network way of solving problems, as the UN brokered and eventually got a negotiated agreement among all parties. More extensive use of interorganizational communications media would have lessened the likelihood of such a crisis emerging. The amount of contact and information sharing necessary in this environment is too great for just one medium of communication. The communication and information physical structure could be used to improve information transfer and to facilitate cooperative problem solving, but by building on rather than replacing traditional forms of networking, such as face-to-face. As Wellman et al. (1996) point out, concerns about whether online ties can be strong ties are wrongly specified. Although Internet technologies can transcend time and space, not all ties are either totally online or totally off-line. Much online contact is between people who see each other in person, and people mix e-mail communication with face-to-face communication. Conversations started in one medium continue in another, increasing the degree of trust, information exchanged, identification with the mission, and, ultimately, joint problem solving.

Furthermore, an IT backbone can help integrate the network organization by providing the means for data sharing and integration (Rockart and Short 1991). Strong links can potentially flatten organizational hierarchy by enabling a redistribution of resources, decision rights, power, and control (Applegate et al. 1988; Lucas and Baroudi 1994; Rockart and Short 1991), and by attenuating status distinctions. The limited nature of the physical net-

work between the organizations in Kosovo severely inhibited this flattening in the network organization.

Identification with UNMIK: Single or Dual Citizenship. As boundaries become more permeable, employees are both members of their own hierarchical organization *and* the network organization. In the business literature, Handy (1995) describes this as members experiencing a "dual citizenship" of affiliation with their project team (municipality) and with their company (organization). They have both in-group and out-group ties, yet work to achieve a larger social integration (Baker 1993). But they need shared goals (Rockart and Short 1991), a common background (Powell 1990), and a collective vision (Peters 1992).

Employees' identity as expressed in their e-mail address was a constant reminder of their "in" or "out" status. Only UN international staff, civilian and police, and EU international staff had an unmik.org e-mail address. Because communication was so central and information flow was so critical to the mission, this distinction was felt keenly. On a practical level, it made it that much more difficult to contact somebody outside of one's own physical network. Psychologically, it made it difficult to think of oneself as being part of the same organization, or if that was clear, that one had equal status with other members. Gomes, the EU officer in Preveca felt that the UN regarded the EU (which shared the building) as a nuisance, evidenced by the long wait and fight the EU had to endure to get access to the UN intranet and e-mail system on more than one computer. Initially the UN refused to give more access, and eventually the issue had to go all the way to New York before it was resolved in favor of the EU getting access to the Internet on another three computers. They got it, Gomes said, "not because we are part of UNMIK and are entitled. But we had to beg for it and say 'c'mon, we are troubled.' I tried everything and eventually we got them to sign a memorandum that they will cooperate with us" (L. Gomes, November 2, 2001, personal interview).

Gesing, in the OSCE headquarters in Pristina, said that OSCE staff's exclusion from the social events announced over the UNMIK intranet had serious consequences for the identification of people with the overall mission and for establishing ties that would be useful in their work. The absence of such opportunities to socialize decreased the

amount of trust, information exchange, and joint problem solving capabilities shared by the organizations.

Mobile Phone Network: The Comprehensive Network

Unexpectedly, the one medium able to overcome the physical and institutional limitations of the network organization was the mobile phone network. It was independent of the organizational network in terms of provision, control, and maintenance. Kouchner, the first special representative of the Secretary General in Kosovo, opened a global competition for companies to bid to establish a mobile network in Kosovo. Alcatel, a mobile phone service provider based in Monaco, won the public competition and now provides the mobile phone network in Kosovo. It was available to anyone willing to pay for a phone, the phone chip, and the charges. Thus, it was the one network that the KPS and the local municipal administration could share with all the organizations. There was no real competition to this company except from Mobtel, a Belgrade-based mobile phone company that the majority of Albanians would not use for political reasons. Out of 100 non-military internationals I met, only one person did not have a mobile phone. Although not part of the official infrastructure provided by the organizations, it was the medium most frequently used, and all the organizations pay for the phone charges incurred as employees carried out their official duties. UNMIK or OSCE or the EU did not pay for their personal calls, nor did these organizations pay for the purchase of the phone itself, the average price of which was 300 Deutsch marks (150 Euro). The mobile phone network was not present in the initial days of the mission, and most of the UN staff saw its introduction as more critical than the Internet. Especially for the workers who spent a significant amount of time in the field, the mobile phone was described as "indispensable" (S. Henry, November 3, 2001, personal interview). It liberated Henry from fixed locations; people called *him* not his office. The use of the mobile phone allowed workers to make the best use of traveling time and of time between meetings if

those meetings were not in their base office. The use of mobile phones had considerably reduced the reliance on the radio network. Henry is typical when he said that "I'm so used to my phone, I don't use the radio really any more."

The closest entity to an electronically based or virtual organization⁶ in Kosovo was the one based on the mobile phone network and to a lesser extent, commercial e-mail. Every international had a commercial e-mail account besides their organizational one—the most popular were Yahoo and Hotmail. Most locals working with the UN also had a commercial e-mail account they checked on UN, OSCE, NGO, CIVPol computers—whichever organization they were working with. Because the UNMIK intranet (Lotus Notes) was so slow, many of the UN staff chose to use their commercial account for professional use if they already knew the people with whom they were communicating. When the CIVPol commander in Banskik was going home to the United States for vacation for three weeks, he announced it at the weekly 4 Pillars meeting in the UN office in Banskik and said, "I'll be away on vacation but will be running the office through e-mail. You can e-mail if you want, anyone. Here's my Hotmail account [and he distributed his card]." The hierarchies' official physical infrastructure was less successful in promoting networking on the ground than the uncontrolled mobile phone network and commercial e-mail.

The Role of ICTs in the Internal Transformation of UNMIK's Constituent Hierarchical Organizations

The more networked the organizations were internally, the easier it was for them to be part of the external network organization. A requirement of a networked organization is the free flow of information, and information technology was heavily affecting the flow of information and the management of information and knowledge within the organizations. Acquisition and distribution or the obtaining and sharing of information was enormously improved within the hierarchies by IT. Before e-mail, the UN and OSCE officers in the municipali-

6. Although many researchers use the term virtual to describe geographically or temporally distributed groups, no one definition has yet gained acceptance (Mowshowitz 1997). Virtualness is thus far a complex and continuum-based concept. Much of the emphasis on computer-mediated communications research is on the dichotomy of face-to-face versus virtual communication, yet the reality in organizations is hybrid groups that meet face to face as well as virtually (Nunamaker et al. 1997; Griffith and Neale 1999).

ties would have to deliver their paperwork, including daily and weekly reports, to Preveca by car, an hour's round trip from Thezren, a 40-minute round trip from Banshik.⁷ With e-mail it was all done electronically, saving enormous amounts of time and making possible greater dissemination of reports.

The importance of information assets to network organizations (Drucker 1992; Jarvenpaa and Ives 1994; Powell 1990) raises important questions about managing information resources. Theories of organizational learning provide a framework by breaking information management into acquisition, distribution, interpretation, and memory (Huber 1990). Organizational memory describes the storage of information for ready access and future use. IT plays a vital role in this. Hence, IT was improving the efficiency of information flow within the hierarchical organizations tremendously.

But as technologies provide affordances and not determinants, the use of technologies has to fit the institutional environment of the organizations. The hierarchical organization in an environment like Kosovo faced two problems with management of information. One was the problem of diffusing existing information and interpretation to joining members. The second was the problem of maintaining organizational history and experience in-house when members leave (Jarvenpaa and Ives 1994). With the high turnover of personnel in Kosovo and the potential loss of learning, a technology-based organizational memory may lessen the effect and greatly improve the management of intellectual capital (Davidow and Malone 1992; Drucker 1992; Eccles and Crane 1987; Huber 1990, 1991; Jarvenpaa and Ives 1994). The organizations in Kosovo handled this differently.

The UN Civil Administration

Although the UN had the infrastructure for managing information, it did not have an efficient institutional mechanism for ensuring storage and transmission of institutional history. Each municipality was asked to produce a daily and weekly report, but there was no sanction if they did not do so and there was no online database of municipal reports,

except the one maintained by Magan, the MA, at his own initiative for the municipality of Banshik. Banshik had produced a detailed report every working day since the start of the mission. It provided a detailed picture of the process of institution building and the relations between the organizations and the population. In Thezren, when I asked to see the equivalent institutional history, I was told it did not exist. The previous MA, Jonson, did not keep a daily record and the current MA, Shamon, did so sporadically. There was no written record of activities in Thezren for the first two years of the mission and an infrequent and sketchy one for the six months before my study.

Research has linked the technical characteristics of computer-mediated communication to task group outcomes such as increased participation, more egalitarian participation, more ideas offered, and less centralized leadership (Hiltz et al. 1986; Rice 1987; Adrianson and Hjelmquist 1991; Weisband et al. 1995). From the contrasting experience of Banshik and Thezren,⁸ it appears that more egalitarian participation and less centralized leadership must be there alongside or before the use of IT to unlock the IT possibilities for enhancing these qualities.

The UN leadership in the two municipalities used IT in different ways, and their use reflected the institutional characteristics of their network organizations. When the MA in Thezren wanted to see somebody he would summon them to a meeting in his office; he regarded most of the e-mail he received as "not very useful" and said he preferred to use the fax. He did not use e-mail for networking purposes. Magan, the MA in Banshik, used the Internet as a networking tool and saw its potential as a resource beyond sending information more easily and faster within the organization. He said:

I'd be interested in finding a Web site that I could go to where it could tell me other ideas on how to deal with emerging democracies and the developing world and people who have done that kind of thing before. But who else out there has done this? It'd be like AOL Online when you don't understand the system. You can call AOL and say

7. *The EU worked differently from the UN Civil Administration and the OSCE; they did not have local or municipal offices, as their implementing partners at the local level were NGOs, who were not part of the EU's bureaucratic structure.*

8. *Although both Banshik and Thezren began in similar circumstances after the war in 1999, and were comparable in all socioeconomic and geographic respects before the war, after 2½ years of international presence, Banshik was making good progress toward peace and reconstruction; Thezren was behind in all areas.*

"Please tell me how to do this." . . . I have a computer full of very bright people whom, if I really don't understand something, I'll pop them off a message. (T. Magan, September 29, 2001, personal interview)

Furthermore, the egalitarian nature of the Internet encouraged the making of requests and the response to them. "It helps solve the problem of inaccessibility, if I want to see or talk to somebody not physically in reach or heavily guarded, then I can send it through" (M. Gheyntanchi, November 4, 2001, personal interview).

UN officers did use e-mail within the UN for purposes other than reporting and transferring information. IT allows decentralization and the removal of status distinctions, so that power and influence might no longer derive from rank but from persuading others to accept a particular interpretation of the data (Kanter 1989). As expertise becomes critical, resources then flow not to hierarchical posts but to obvious centers of competence (Huber 1990). Henry, the local community officer (LCO)⁹ in Thezren was particularly adept at maximizing his contacts with his chain of command up to the Community Affairs Office in Pristina. "The fact is that the most consistent way of keeping in touch is my UN Web mail. I work with the Department of Community Affairs in Pristina and I have to be in touch with them a lot. For example, at the end of this year, we have a lot of money left over. I've been in touch with them regularly about what projects I might be interested in getting funded. I'm in touch with them on e-mail a lot." Henry's counterpart in Banskik was not even aware of the money left over, money that Henry procured by simply sending brief proposals by e-mail to the center. "I mentioned all this money I got, and Charlotte [LCO, Banskik] was completely unaware of it. For greenhouses, agricultural projects . . . I put in my request by e-mail with a brief description of the project and I got it" (S. Henry, November 3, 2001, personal interview). It was not his rank or status that made the crucial difference but his ability to persuade others to accept a particular interpretation of the data or facts, that such money could be put to good use for certain projects that he was devising in Thezren.

OSCE

The production of too much information without management is one potential pitfall for organizations using new technologies. The OSCE had better knowledge management in that more tasks were done online, but it still faced the problem of information overload. Gesing, a cabinet member of the OSCE organization in Kosovo, pointed out that there was a deluge of reports and that most were descriptive when what would be most useful would be analysis. "What we're faced with is an abundance of reporting on seminars, workshops, which are of no use to the outside world at all. They're not interested in why OSCE is organizing a women's workshop in a particular municipality. They want to know how these activities tie into and impact on the life of the municipality or the life of a certain sector of a society or NGO life, or into what kind of impact do our activities have, rather than reporting on the activities themselves." He sees information technology as a double-edged sword. "In earlier times, people would send in a fax and make sure the information in there was succinct, because it would create another physical thing to read. And it takes time to fax, to send the admin assistant down to the fax room. It really creates a hassle. You'd better put things on one page rather than three pages. You better make up your mind beforehand what you want to report. Nowadays, you would have everything on it, useless stuff" (H. Gesing, November 8, 2001, personal interview).

KFOR

As McDermott, a regional officer in the UN, and several other internationals confirmed, KFOR had a very good system for transmitting information and knowledge to each new contingent. A large part of its mission was to gather intelligence so KFOR, in theory, had a high level of knowledge of who was who and what was going on, and passed that on in detail to each incoming contingent. However, KFOR was reluctant to share that information with other organizations for force protection reasons, and it primarily used high-level, face-to-face contact with other organizations.

An inadequate system of institutional memory can be devastating for institutional learning; the

9. The LCOs were responsible for the welfare of the inhabitants of the Serb enclaves in each municipality.

system in the UN was a waste of the potential of ICTs to distribute broadly information and to promote organizational learning by rapidly diffusing ideas (Finholt and Sproull 1990; Huber 1990; Sproull and Kiesler 1986). Increased sharing might form the basis of better decisions and learning curve effects; it might also amplify knowledge generation by focusing additional sources of expertise on important issues (Huber 1990; Jarvenpaa and Ives 1994) within the network.

So, organizations within the network organization differed considerably in their degree of "networkedness." Even within organizations, like the UN, different municipal administrations would be more networked than others, and a single individual, such as Henry in Thezren, could effectively network within and beyond his own organization using ICTs.

For most international workers, regardless of the organization they worked for, e-mail and the Internet boosted morale as it kept people integrated in their personal networks outside Kosovo. Most of the UN employees said that the ability to stay in touch with loved ones at home was the most beneficial aspect of e-mail. E-mail and the Internet were seen as critical for morale, as staff were members of a global network of family and friends that provided companionship, information, and social support. Murali, the UN officer in Preveca, said he gets two lines of e-mail every morning from his family in India, and this enables him to work free of worry for the rest of the day. They also used it to "stay in touch with the outside world." Ricky, the information technology officer for the region, monitors the UN's use of the Web and says that the most frequently visited sites are financial ones; UN staff can manage their bank accounts, bills, and financial affairs over the Internet. The second largest use is for news; the two most frequented are Yahoo and MSNBC, with own-language sites following.

The Institutional Context

Different Degrees of Social Presence in Different Communications Media

The degree to which ICTs are used (which, given their impact on the individual organizations and the network organization's effectiveness) is critical to the overall mission's success and is dependent on the institutional culture of the individual organizations,

the institutional culture of the overarching network organization, and the institutional context of the network organization. ICTs' impact on organizational behavior is not predictable. Availability of certain ICTs does not mean they will be used. The most appropriate use of ICTs in any given situation emerges only as the external context and limitations, and the institutional requirements of the network organization, become apparent. In a turbulent environment such as Kosovo where the organizations are not used to participating in network organizations, what emerged was the need for ubiquity and variety in ICTs.

ICTs (e-mail, voice mail, information transfer) make it feasible for a broad range of work groups to be formed with members who do not necessarily work in close proximity or within the same organization. The people in the international organizations used a range of information and communication media and technologies: face-to-face meetings, cellular phone, land telephone, radio, e-mail, Internet, and intranet. However, they did not use these media interchangeably. The choice of media was determined by the fit of the medium for the environment, both internally within the hierarchies and externally in the field with the other organizations. The choices made by the different organizations yield insights into the role of such technologies in turbulent environments such as UNMIK.

The amount of information and the variety of different perspectives renders interpretation of frames of understanding to be of critical importance. The more interpretations there are available, the greater the likelihood of finding common ground to work with another organization(s). But this can only be achieved at each level; interpretation is not only based on information but also on the knowledge created by interaction and communications on the ground. Thus, a variety of ICTs are needed, and just as important, an appreciation of which media is most appropriate for which type of interaction or situation.

The principle of requisite variety aids our understanding of the importance of having a diverse range of ICTs for use by a diverse group of organizations. Drawing from general systems theory, the principle of requisite variety contends that an organization's internal regulatory mechanisms must be as diverse as the environmental complexity with which

it must contend. Networks can be seen as a response to the principle of requisite variety, as "it has become increasingly clear that the organizational form associated with flexible specialization is the network, although we have not always used that term" (Piore 1992:431). Contingency theory¹⁰ helps explain how there is no one best organizational form and how organizations must map structural elements to structural variables in the environment. Thus, in the turbulent environment in Kosovo with different organizations using different media and ITs, members of organizations had to shift constantly to match the technology they used with the communication needs of the project or task they were working on with another organization.

The communications media or IT chosen depends on the type of communication involved and the environment in which the communication takes place. "Rich" channels of communication, or channels of communication with a high degree of social presence, are needed for equivocal and uncertain communication where the meanings are ambiguous and values and schema for interpreting may be different or where data may be missing (Daft and Lengel 1984, 1986; Daft et al. 1987). For instance, when UN personnel were communicating with KFOR military personnel, their schemas and values were different and they did not always understand the process of operations in the other organization, rich communication was required to prevent misunderstandings and miscommunication. Richness, or the degree of social presence, can be measured in two ways. First, bandwidth refers to the ability to exchange information from all human senses: sight, hearing, and smell (Nohria and Eccles 1992). Face-to-face communication has more bandwidth than telephone, telephone has more bandwidth than voice mail, and voice mail more bandwidth than e-mail. Second, synchrony refers to whether people can communicate at the same time. Face-to-face interaction and telephone communication are synchronous (except when one leaves a message). E-mail and voice mail are not synchronous.

The importance of bandwidth and synchrony depends on the environment. In Kosovo, as indeed in any network organization, the goals of the mission could not be attained without trust; the social information provided by high bandwidth was extremely important.¹¹ Hinds and Kiesler (1995) propose that telephone, voice mail, and e-mail differ in bandwidth and, hence, in how much social information they provide. Telephone allows people to exchange more social information than voice mail. Voice mail allows people to exchange more social information than e-mail. In Kosovo, face-to-face interaction was the preferred mode among organizations at the local level, as the environment and differences in organizational cultures required a high degree of trust, the production of which needed a high degree of bandwidth. When face-to-face interaction was not possible between organizations, the mobile phone was used. When that was not possible, voice mail was used. Only if voice mail was not possible would e-mail be used if it was available. Within organizations, face-to-face interaction was used first if the person was in the same office. If not, e-mail was used before the mobile phone for work matters. If it was a social matter or a complex issue, the mobile phone was more likely to be used. This was the pattern I observed in both UN offices and in both OSCE offices.

From an organizational perspective, dispersed work teams require social as well as technical support (Wellman et al. 1996). Studies of collaboration among scientific communities suggest that an initial period of physical proximity is necessary to build trust and to come to a consensus on the focus of proposed projects (Carley and Wendt 1991). In turbulent environments where nonroutine complex problems are to be solved, face-to-face interaction as the basis of cooperation and information exchange is crucial. Even if the relationship continues virtually, an initial face-to-face meeting is generally seen as crucial for communication. Gheyntanchi, the deputy MA in Banskik, said, "The most important things can only be done through human contact. You cannot send an e-mail saying 'Send us a couple of

10. Contingency theory seeks to "understand and explain how organizations function under different conditions" (Lawrence and Lorsch 1967:186).

11. Social information and context cues increase involvement, comprehension through back channel cues, and social pressure (Kraut et al. 1992; Siegal et al. 1986).

million dollars' [laughs]. Later when they know you then you can do a lot [on e-mail], but in early contact, the human contact is essential, in my experience, especially in the area of finance" (M. Gheyntanchi, November 4, 2001, personal interview).

After face-to-face interaction, the preferred and most frequently used mode of communication was the mobile phone. The synchrony of telephones allows both a lot of information to be exchanged in a given time and ongoing feedback so that people can adjust what they say to one another, correct misunderstandings, and fill in details. People perceive rapid exchange to be important for lateral communication (Zmud 1990) and collaborative planning and problem solving under uncertainty (Finholdt and Sproull 1990; Kraut et al. 1992). Because the telephone is synchronous, it allows people to get faster responses in a given time than asynchronous technologies (Barry and Bateman 1992). As Ryan, the logistics officer for OSCE in Banshik, said, "I get 10 e-mails a day, and 8 of those would be business. I just ask a question and wait for a response. It's usually a logistics question. If I have to go on and on about something I wait till I see the person or I use the telephone." But sometimes people had their phones switched off or were out of range of a signal; then, asynchronous communication was used, usually voice mail between organizations. Within organizations, where the culture was familiar and understood, e-mail was used to ask questions. Ryan in OSCE said, "I'd fire off an e-mail with a question and get back an answer" (J. Ryan, October 9, 2001, personal interview). This was also true within the UN. Lateral communication is more likely to be collaborative than is vertical communication (Watson 1982) and to require more discussion. Employees engaged in lateral communication tend to use the telephone. In Kosovo, they also strove to meet face to face as much as possible, using the telephone to check the availability of the person they needed to talk to.

The online storage of e-mail messages allows participants to be in different places and on different schedules, thus giving them more control over when they read and respond to messages. The rapid transmission of large files between individuals and among groups increases the speed of communication, supports collaborative work, and sustains strong and weak ties (Feldman 1987; Finholt and

Sproull 1990; Eveland and Bikson 1988; Sproull and Kiesler 1991).

Thus, ubiquity and variety are necessary for two reasons: the differential adaptation of the organizations to being part of a network organization, and the degree of turbulence in the postconflict environment of Kosovo. However, the direction of change is clear—increased use of ICTs and more sophisticated deployment of varied technologies as people and organizations become more familiar and comfortable with them.

Conclusion

ICTs are playing an increasingly key role in the network organization of UNMIK in the postconflict environment of Kosovo and will play a key role in similar future interventions. In Kosovo, they contributed to the sharing and cooperative use of resources, and the building up of trust and identification with the network organization's overall goals (the mission). The use of ICTs increased the exchange of fine-grained information and they contributed to joint problem solving, all of which ultimately contribute to the degree of cooperation that determines the extent to which the mission's goals can be realized. The direction of change is clear—more extensive deployment and use of ICTs. The organizations involved are in a process of transformation and the lessons learned in Kosovo will facilitate this process. Lessons from Kosovo include an emerging realization that the limitations imposed when the design of the overall physical network and the persistent tendency to organizational imperialism of all the organizations made networking with other organizations very difficult. The most comprehensive electronic networks were those that the organizations had no control over—the mobile phone and commercial e-mail. They included all organizations and all levels of personnel, and crucially, they incorporated the local institutions the international organizations were working with—the police and the local municipality. A comprehensive UNMIK intranet would have had the potential to connect the international organizations, but the limited version that was erected excluded some people and established an "in" and "out" to the network organization. This latter reason derived from the fact that there was not an interactive space shared by all, for instance, a missionwide intranet. A shared

intranet would arguably provide the sense of dual citizenship (Handy 1995) or identification with the mission as well as individuals' own organization that would yield a sufficient social base for e-mail to be used interorganizationally. In Kosovo in 2001, e-mail was primarily used *within* organizations. It was not used between organizations partly because at the embryonic stage of UNMIK as a network organization there was a need to have at least initial face-to-face interaction or voice-to-voice interaction with people from other organizations and partly because it was only slowly occurring to the organizations that it could be used interorganizationally. Thus, the technology provided affordances, but ultimately it was the organizational structure and institutional environment (within and between organizations) that determined whether technologies would be used and what technologies would be used for different tasks.

Within the hierarchies, each organization was grappling with the organizational consequences of introducing ICTs—wanting the flexibility and knowledge management such technologies made possible but unsure of how to alter their organizational structure and institutional culture to realize this potential. The flow of information had definitely increased with the introduction of ICTs, but knowledge management was yet to catch up. The biggest danger was being drowned in a deluge of detail while suffering a dearth of useful and non-time-consuming analysis. In addition, the importance of institutional memory in a situation with such diverse organizations and high turnover of personnel was slowly being realized, as was the potential of ICTs to transform intraorganizational coordination. In sum, ICTs were slowly transforming organizational practice to encompass that required by participation in a network organization such as UNMIK, but that change was as yet unevenly distributed and unevenly advanced. ■

References

- Adrianson, L. and E. Hjelmquist. 1991. "Group Processes in Face-to-Face and Computer-Mediated Communication." *Behavior and Information Technology* 10 (4):281–296.
- Applegate, L. M., J. I. Cash, and D. Q. Mills. 1988. "Information Technology and Tomorrow's Manager." *Harvard Business Review* (November–December):128–136.
- Appleyard, M. M. 1996. "How Does Knowledge Flow? Inter-firm Patterns in the Semiconductor Industry." *Strategic Management Journal* 17:137–154.
- Arquilla, J. and D. Ronfeldt. 2001. *Social Networks and Netwar*. Santa Monica, CA: Rand.
- Baker, W. E. 1993. "The Network Organization in Theory and Practice," in N. Nohria and R. G. Eccles, eds., *Networks and Organizations* (pp. 397–429). Cambridge, MA: Harvard Business School Press.
- Barry, B. and T. S. Bateman. 1992. "Perceptions of Influence in Managerial Dyads: The Role of Hierarchy, Media and Tactics." *Human Relations* 45 (6):555–574.
- Bockowski, P. 2001. *Affording Flexibility: Transforming Information Practices in Online Newspapers*. Ph.D. dissertation, Cornell University.
- Carley, K. and K. Wendt. 1991. "Electronic Mail and Scientific Communication." *Knowledge* 12 (4):406–440.
- Daft, R. L. and R. H. Lengel. 1984. "Information Richness: A New Approach to Managerial Information Processing and Organization Design," in B. Staw and L. Cummings, eds., *Research in Organizational Behavior* (pp. 191–233). Greenwich, CT: JAI Press.
- Daft, R. L. and R. H. Lengel. 1986. "A Proposed Integration Among Organizational Information Requirements, Media Richness, and Structural Design." *Management Science* 32 (5):554–571.
- Daft, R. L., R. H. Lengel, and L. Klebe Trevino. 1987. "Message Equivocality, Media Selection, and Manager Performance: Implications for Information Systems." *MIS Quarterly* 11 (3):355–366.
- Davidow, W. H. and M. S. Malone. 1992. *The Virtual Corporation*. New York: Harper Collins.
- DeSanctis, G. and J. Fulk, eds. 1999. *Shaping Organizational Form: Communication, Connection and Community*. Walnut Creek, CA: AltaMira.
- Drucker, P. 1992. "The New Society of Organizations." *Harvard Business Review* (September–October):95–104.

- Eccles, R. G. and D. B. Crane. 1987. "Managing Through Networks in Investment Banking," in *California Management Review* 30 (1):176–195.
- Eveland, J. D. and T. K. Bikson. 1988. "Evolving Electronic Communications Networks: An Empirical Assessment." *Office, Technology and People* 3:103–128.
- Feldman, M. S. 1987. "Electronic Mail and Weak Ties in Organizations." *Office, Technology and People* 3:83–101.
- Finholt, T. and L. S. Sproull. 1990. "Electronic Groups at Work." *Organizational Science* 1 (1):41–64.
- Fulk, J. and G. DeSanctis. 1995. "Electronic Communication and Changing Organizational Forms." *Organization Science* 6 (4):337–349.
- Galbraith, J. R. 1973. *Strategies of Organizational Design*. Reading, MA: Addison-Wesley.
- Grant, R. M. 1996. "Toward a Knowledge-Based Theory of the Firm." *Strategic Management Journal* 17:109–122.
- Griffith, T. and M. A. Neale. 1999. "Information Processing and Performance in Traditional and Virtual Teams: The Role of Transactive Memory." Research paper no. 1613, Stanford University, Graduate School of Business.
- Handy, C. 1995. "Trust and the Virtual Organization." *Harvard Business Review* 73:40–50.
- Hiltz, S. R., K. Johnson, and M. Turoff. 1986. "Experiments in Group Decision-Making: Communication Process and Outcome in Face-to-Face versus Computerized Conferences." *Human Communication Resources* 13 (2):225–252.
- Hinds, P. and S. Kiesler. 1995. "Communication across Boundaries: Work, Structure and Use of Communication Technologies in a Large Organization." *Organization Science* 6 (4):373–393.
- Huber, G. P. 1990. "A Theory of the Effects of Advanced Information Technologies on Organizational Design, Intelligence, and Decision Making." *Academy of Management Review* 15:47–71.
- Huber, G. P. 1991. "Organizational Learning: The Contributing Processes and the Literatures." *Organization Science* [Special issue] 2 (1):88–115.
- Jarvenpaa, S. L. and B. Ives. 1994. "The Global Network Organization of the Future: Information Management Opportunities and Challenges." *Journal of Information Management Systems* 10 (4):25–57.
- Johnson-Lenz, P. and T. Johnson-Lenz. 1978. "On Facilitating Networks for Social Change." *Connections: Bulletin of the International Network for Social Network Analysis* 1(2).
- Kanter, R. M. 1989. "The New Managerial Work." *Harvard Business Review* (November–December): 85–92.
- Katz, D. and R. Kahn. 1978. *The Social Psychology of Organizations*. New York: Wiley.
- Kling, R. and T. Jewett. 1994. "The Social Design of Worklife with Computers and Networks: An Open Natural Systems Perspective." *Advanced Computers* 39:239–293.
- Koppel, R., E. Appelbaum, and P. Albin. 1988. "Implications of Workplace Information Technology: Control, Organization of Work and the Occupational Structure." *Research in the Sociology of Work* 4:125–152.
- Kraut, R. E., R. Fish, and B. Chelfonte. 1992. "Requirements and Media Choice in Collaborative Writing." *Human-Computer Interaction* 7:375–407.
- Larson, A. 1992. "Network Dyads in Entrepreneurial Settings: A Study of the Governance of Exchange Processes." *Administrative Science Quarterly* 37:76–104.
- Lawrence, P. R. and J. W. Lorsch. 1967. *Organization and Environment*. Cambridge, MA: Harvard University Press.
- Lea, M., T. O'Shea, and P. Fung. 1995. "Constructing the Networked Organization." *Organizational Science* 6 (4):462–478.

- Lucas, H. C. and J. Baroudi. 1994. "The Role of Information Technology in Organizational Design." *Journal of Management Information Systems* 10 (4):9–23.
- Markus, M. L. 1990. "Toward a 'Critical Mass' Theory of Interactive Media," in J. Fulk and C. Steinfield, eds., *Organizations and Communication Technology* (pp. 194–218). Newbury Park, CA: Sage.
- Markus, M. L. 1994. "Electronic Mail as the Medium of Managerial Choice." *Organizational Science* 5:502–527.
- Mowshowitz, A. 1997. "Introduction to Special Issue on Virtual Organization." *Communications of the ACM* 40 (9):30–37.
- Nohria, N. and R. G. Eccles, eds., 1992. *Networks and Organizations*. Cambridge, MA: Harvard Business School Press.
- Nonaka, I. and H. Takeuchi. 1995. *The Knowledge Creating Company. How Japanese Companies Create the Dynamics of Innovation*. New York: Oxford University Press.
- Nunamaker, J. F., R. O. Briggs, N. C. Romano, and D. D. Mittleman. 1997. "The Virtual Office Workspace: Group Systems Web and Case Studies," in D. Coleman, ed., *Groupware: Collaborative Strategies for Corporate LANs and Intranets* (pp. 231–254). Upper Saddle River, NJ: Prentice-Hall.
- Orlikowski, W. J. 1995. "The Duality of Technology: Rethinking the Concept of Technology in Organizations." *Organization Science* 3 (3):398–427.
- Peters, T. 1992. *Liberation Management: Necessary Disorganization for the Nanosecond Nineties*. New York: Knopf.
- Piore, M. J. 1992. "Fragments of a Cognitive Theory of Technological Change and Organizational Structure," in N. Nohria and R. G. Eccles, eds., *Networks and Organizations* (pp. 430–444). Cambridge, MA: Harvard Business School Press.
- Powell, W. W. 1990. "Neither Market Nor Hierarchy: Network Forms of Organization," in B. Staw and L. L. Cummings, eds., *Research in Organizational Behavior* (pp. 295–336). Greenwich, CT: JAI Press.
- Rice, R. 1987. "Computer-mediated Communication and Organizational Innovation." *Journal of Communications* 37 (4):65–95.
- Rockhart, J. F. and J. E. Short. 1991. "The Networked Organization and the Management of Interdependence," in M. S. Scott Morton, ed., *The Corporation of the 1990s: Information Technology and Organizational Transformation* (pp. 189–219). New York: Oxford University Press.
- Siegal, J., V. Dubrovsky, S. Kiesler, and T. W. McGuire. 1986. "Group Processes in Computer-Mediated Communication." *Organizational Behavior and Human Decision Processes* 37:157–187.
- Simon, H. A. [1947] 1976. *Administrative Behavior: A Study of Decision-making Processes in Administrative Organization* (3d ed.). New York: Free Press.
- Sproull, L. and S. Kiesler. 1986. "Reducing Social Context Cues: Electronic Mail in Organizational Communication." *Management Science* 32:1492–1512.
- Sproull, L. and S. Kiesler. 1991. *Connections: New Ways of Working in the Networked Organization*. Cambridge, MA: MIT Press.
- Szulanski, G. 1996. "Exploring Internal Stickiness: Impediments to the Transfer of Best Practice with the Firm." *Strategic Management Journal* 17:77–91.
- Uzzi, B. 1997. "Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness." *Administrative Science Quarterly* 42:35–67.
- Watson, K. M. 1982. "An Analysis of Communication Patterns: A Method for Discriminating Leader and Subordinate Roles." *Academy of Management Journal* 25 (1):107–120.
- Weisband, S. P., S. K. Schneider, and T. Connolly. 1995. "Computer-mediated Communication and Social Information: Status Salience and Status Difference." *Academy of Management Journal* 38 (4):1124–1151.
- Wellman, B. et al. 1996. "Computer Networks as Social Networks: Collaborative Work, Telework and Virtual Community." *Annual Review of Sociology* 22:213–238.

Zack, M. H. and J. L. MacKenney. 1995. "Social Context and Interaction in Ongoing Computer Supported Management Groups." *Organizational Science* 6 (4):394-422.

Zmud, R. W. 1990. "Opportunities for Strategic Information Manipulation Through New Informa-

tion Technology," in J. Fulk and C. Steinfield, eds., *Organizations and Communication Technology* (pp. 95-116). Newbury Park, CA: Sage.