Rural Development in the Information Age

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Workshop Proceedings

Building Partnerships for Community Development

Rural Development in the Information Age

April 5 and 6, 1993
Kearney, Nebraska

These proceedings were compiled by Robert F. Blair and Melanie Hayes at the Center for Public Affairs Research University of Nebraska at Omaha. We gratefully acknowledge the assistance of Steve Larrick, Roberta Pinkerton, Duane Olsen and Jo Ann McManus.
Workshop Proceedings

Building Partnerships for Community Development
Rural Development in the Information Age

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Welcome

Steve Buttress, Director, Nebraska Department of Economic Development

The purpose of the conference today is to show how telecommunications and computer technologies can help communities, businesses, education, government and those in health areas to further grow and develop in their small communities. For example, there is a video conferencing booth set up to show that you can meet with other persons throughout the state without traveling to one central location. There are a variety of dial-up data services that are being demonstrated. There are satellite services being demonstrated. There are many telecommunications and computer mediums being shown.

The thrust of this conference is to show this combination of groups how they might work together to make more of the telecommunications highways available to them. What we are trying to show here today to various entities is that they -- whether they are a hospital, or a library, or a government entity, or a school or a business -- can access technology, access services or market their services in a variety of ways not just through them all meeting or through the traditional marketing format.

We hope after this conference we have more alliances being formed throughout the state to enhance our telecommunications and information technologies highways. The real goal is to get people here to share their ideas. Many times a school system has gone out and tried to build a system by itself or a health services provider has gone out and tried to build a system by itself. We want to help them look at common ways to share facilities and maybe save on costs or enhance their capabilities by sharing.

Nebraska has always been a leader in telecommunications. There have been many things that have happened in this state that already make us stand out. What we want to do is take the next step. We want to further distribute that telecommunications highway, if you will, to every little burg, city and township that we can.
Keynote Address - Monday, April 5

Information Age Technologies Across the Nation

Dr. Sharon Strover, University of Texas at Austin

Summary

Telecommunication technologies are an increasingly more important part of our national infrastructure. These networks of telephone companies, cable broadcasters, satellite services and computer systems are becoming the "information superhighways" for business and government in the 1990s.

Rural areas have generally been slower to take advantage of these new technologies, due in part to a different set of factors which have to be considered when establishing policies and needs in rural areas as opposed to urban areas.

The face of telecommunications in the future will be mapped out in the next few years. The challenge of rural areas in the 1990s will be to not only provide access to these technologies, but also to do the following:

1. Establish telecommunication policies that address the issues of rural America; and
2. Cultivate a development point of view and critically evaluate their technology needs.

Address

Telecommunications is an increasingly important part of the national infrastructure. It supports not only the traditional economic sectors but also affects health and education which provide the foundation for economic wealth. In late February, Vice President Gore issued a report called "Technology for America's Economic Growth" which suggests ways to build economic strength. That report is about information technologies. It talks about information super-powers that will expand the capabilities of high-speed data and bring all sorts of information to the public sector. So, likening the development of such information super highways to railroads in terms of potential impact, Gore's report suggests that there are tremendous sufficiencies to be gained, services to be expanded, and opportunities to explore if only we had infrastructure.

The critical element when speaking of telecommunications infrastructure -- whether we consider public power systems, private line operators, satellite services, cable television operators, even commercial broadcasting -- is domain. We usually think about it in terms of providing direct services: long-distance calling, broadcasting commercial stations, data communication services and public sector enterprises. But in a more oblique way
Telecommunications and service communications also work to support other economic sectors: banking, finance, real estate, computer data processing and other information services such as reservation systems. Telecommunications can also support the delivery of education and health services, as well as other government functions such as social services, welfare and citizen information.

The context that we are talking about and the context in which most of you work is rural America. When we began researching how telecommunications function in rural America, it became clear that an entirely different set of factors had to be considered because the frame of reference has typically been communications and telecommunications in urban areas. When you get into rural areas you really have to change that perception.

What are the factors of rural America? They are as follows:

- Higher poverty rates;
- Lower educational accomplishment;
- Population outmigration which in turn threatens schools;
- Increasing social and health problems, and often, inadequate facilities and service providers to deal with them;
- Low population density; and
- Lack of sufficient markets.

There are two important issues to address. First, there is a need for telecommunication policies which address the growing technology capabilities of rural communities, the deregulation of growing markets and the redirection of marketplace dynamics. As they stand the policies are unable to deliver social and economic benefits to marginalize the rural constituency.

Second, rural populations must respond to the absence of attention from state and federal policy makers by examining themselves more carefully and by learning to recognize, to analyze and organize their own resources in ways that are more reasonable and creative than might be the case by federal programs. A fundamental goal for communities has to be to plan for the future cognizant of its strengths and weaknesses. It must generate the ability to capitalize on the strengths and eliminate, to whatever extent they can, the weaknesses. Conventional measures and conventional notions are not enough. Redefining development is necessary.

We can expect from the Clinton Administration a more creative use of policy that attempts to focus on structuring incentives that generate services communities need: ones that ultimately help and challenge the notion of market. Offering incentives requires that the people who are closest to the situation under scrutiny are the ones who really understand what people respond to, what services are needed and how they might be used. Those people are you.
An interesting aspect of the new technologies is that they actually bring with them a part of conventional notions of the market. They address some of the problems associated with low population density. In other words, satellite seems viable because it is not limited to one rural pocket here and one there. It can reach everybody. So too, a cable system that delivers more than entertainment, that perhaps provides voice communication services or actions for long-distance carriers, count on going beyond the towns logical borders. The point is that new technology creates new markets and if the whole idea of a market service area has been based on old ideas of what a service area is then there will be problems.

Local area planning committees are telling us what a communications system could look like and how it should operate. There are a few federal acts centered on specific systems: broadcasting, the telephone system. And we have some state statutes mandating or dealing with the regulation of certain communication related services, primarily rates. But we really don’t have a policy. The need for policies is beginning to be felt as communities become more and more complicated by the proliferation of technology. States have had to assume a greater and greater role in both controlling and regulating these systems.

It is significant that important providers, perhaps the perceived highways for telecommunications, are proposing some major modifications for toll routes and for adding lots of extra lanes. Many states have really been quick to understand the proposals or to evaluate them. In addition, we need provider companies to be aware of what people like you need and what you could do with telecommunications links. Should the people who see this have some say in what the state is going to do with this increasingly important infrastructure? What can be done to make the system more responsive to your needs, more congruent to your constituency? How can they provide some services that hasn’t been the corporate blue print?

This is the time for all of us to become more aware of telecommunications and the possibilities because how the infrastructure is being built now will be decided in the next couple years. Where do you want that telecommunications capability to be located? Do you want access to I-80 or do you want to be off on a two lane road? Do you want the chance to use satellite delivery services? Who do you want ultimately to make the decisions about it? Should it be somebody in Washington, somebody in Lincoln, or somebody in your town? Can assisted education be used to save some schools, to enhance some educational systems or provide more diagnostics? Is there some way that small town businesses could exploit telecommunication capabilities?

What we need to do is cultivate a development point of view. We decided last year that communities need to be willing to take a look at themselves, to critically evaluate what they want and come up with strategies for getting from point A to point B by networking with all segments of the community and sharing resources. By the same token, state governments, departments of economic development, public service commissions and so forth can likely take a longer view of how they are going to use technology, especially telecommunications,
in a more innovative way. Some of the solutions that people come up with may be
grandiose: Some may be moderate: All represent a start. This kind of initiative ultimately
does come to the attention of government producers who can boost resources at critical
times in very crucial ways. The government folks will feel better about knowing that a
community is behind investments, knowing that there is a grass-roots support for an
innovation. The development point of view is something that we all need to incorporate in
our daily lives. It fundamentally comes down to being involved, to speaking out and to
working with these companies.

Background Information - Dr. Sharon Strover

Dr. Strover is a graduate of Stanford University (M.A., Ph.D.) and the University of
Wisconsin (B.A.). Sharon has taught and researched various topics related to
communications and telecommunications over the past several years, including projects
dealing with satellite-delivered education and social services, cable television, economic
development, and advanced telecommunications infrastructure.

Dr. Strover has presented to the FCC on technology needs and state and local
telecommunications applications, participated in advisory panels for the U.S. Office of
Technology Assessment, and was subcommittee chair for the State of Texas’ investigation of
telecommunications and the U.S.-Mexico Free Trade Agreement.

Dr. Strover co-directed a Ford Foundation study of telecommunications and rural areas
and was a co-author of the recent book Electronic Byways (Praeger, 1991) examining state
telecommunications applications and policy, as well as previous books examining
telecommunications in urban regions and telecommunications in rural areas.

She currently is investigating the trade and cultural aspects of international
telecommunications and completing a book examining the cable television industry.
Concurrent Sessions

Education Initiatives

Chadron State College, Dr. Roger Wess, Professor

As communities are increasingly integrated into a global society, we are faced with rapid change and an avalanche of information. To respond effectively to these challenging trends, people need efficient access to information.

A teacher’s role in this process is to help students learn about the multimedia technologies available for information processing. In turn, students need to become more active in researching and applying the available technologies for problem solving. In this context, databases become our information warehouses and telecommunications become our information highways. Information goals for the future include instant access to information and instant communication.

Distance learning technologies have been very successful in providing place-bound individuals with access to information age technologies. Audio and now video classrooms have enhanced the safety, efficiency and time effectiveness of education in rural areas.

In reviewing the history of distance learning at Chadron State College, Dr. Wess described early audio networking; the voice-activated T1 video technologies which support several classes at the same time; NEB*SAT, the satellite technologies of Nebraska Educational Television; and library automation technologies which help make schools into telecommunication centers.
Pioneer Telephone, Richard Veach, General Manager, Ulysses, Kansas

From the perspective of a telephone company executive, Richard Veach described the development of interactive video systems in rural southwest Kansas.

Technological capacity is not the problem in making telecommunication technologies work for rural areas. The main problems are:

- Convincing people to cooperate;
- Overcoming regulatory obstacles; and
- Finding an affordable system to work with.

In choosing a system always get the best audio system you can buy, since quality sound is essential. Selling points for telecommunication technologies include:

- Forestalling potential school consolidations through distance learning;
- Reducing the time and money spent on traveling to classroom sites;
- Contributing toward the goal of a university without walls; and
- Adapting the system to the needs of private business groups such as the banking and accounting associations.

Veach reiterated that telecommunication is the economic development highway of the future. With encouragement from others, we can all learn the technologies of the future.
Health Initiatives

The Rural Health Education Network, The University of Nebraska Medical Center, Omaha
Dr. Reba Benschoter, Dean, College of Nursing
Dr. Rosalee C. Yeaworth, Dean and Professor, College of Nursing
Robin K. Meter, SYNAPSE Supervisor, Department of Computing Services

"UNMC's Initiatives in Information Technologies"

Objectives of the Presentation
1. Describe the nature of the telecommunications systems presently in use at UNMC, their present applications to support the Rural Health Education Network, and the potential for future development.
2. Discuss the ways television is used in the educational programs and in the administration of the UNMC College of Nursing.
3. Describe the nature of SYNAPSE and its uses.

Presentation Outline

I. Nature of UNMC's Telecommunications Systems
   A. History and present applications of telephone conferencing at UNMC
   B. Pioneering in the development of two-way television for long distance communication

II. College of Nursing's Use of Telecommunications
   A. Brief history of the growth of the College and the development of the technology applications
   B. Current uses of technology in educational programs and the administration of the four campuses of the college
      1. Television courses and meetings across divisions
      2. Off campus delivery of education to RNs in BSN program
      3. Nurse practitioner program at Kearney
      4. Telephone conferences and computer communications

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III. Other UNMC Applications of Telecommunications to Support Rural Health Education Network (RHEN) Activities

A. NEB*SAT support of RHEN's academic programs in Nebraska communities

B. The potential of the Nebraska Video Conference Network

C. The developing role of Computer-Assisted Instruction

D. Future challenges

IV. SYNAPSE: Health Resources Online

A. Communications

B. Library access (UNMC, UN-L, UNK, National Library of Medicine)

C. Health Information Databases

D. Decision Support

E. Continuing Education

F. Office Management

G. Supporting RHEN
   1. Communications with faculty and colleagues
   2. Library access (UNMC, UN-L, UNK, UNO, NLM)
   3. Computer-aided instruction

If you would like additional information about any of the content presented, please call the persons listed above at the University of Nebraska Medical Center.
On February 1, 1990, the Nebraska Educational Telecommunication Commission replaced its 25-year old land-based microwave system (which interconnected the nine transmitters of the statewide ETV network), with a new satellite and fiberoptic system, called NEB*SAT. This system is being funded by the legislature for use by all campuses of the University of Nebraska, the state colleges, technical colleges, elementary and secondary school systems, the State Department of Education, the Nebraska ETV network and public radio.

Although the system began operation using a leased satellite transponder, in June of 1991 the Commission purchased a transponder on satellite Spacenet III. The cost was $6,500,000 and the estimated remaining life is 8 years.

This transponder provides capability for simultaneous broadcasting of three "networks."

- Network 1—a broadcast quality television channel transmitting Nebraska's educational television network programming and public radio.
- Network 2—a second high quality channel, which allows statewide distribution of distant learning and continuing education programs for all educational institutions. Scheduling is on a priority basis. This network requires a 3.2 meter dish for quality reception. It provides one-way video/audio transmission to those participating.
- Network 3—narrow-band channels for compressed video distribution, which allow 12 one-way or 6 two-way interconnections between origination and reception sites located at various educational institutions statewide. These channels can be used only with specialized equipment.

Although compressed video is not a new technology, it is new to ETV and to UNMC. In this system, selected elements of each TV picture are digitized and then transmitted; at the receive site, they are decoded and reconverted to standard television.

Compressed video send/receive hardware consists of an antenna (or large dish) and a transceiver and codec, a computer controlled unit which digitizes and compresses the information for transmission and also "decodes" compressed audio and video received from another location. Each send/receive site system costs about $91,000.

The major advantage of the compressed video technique is that many more channels of communication can be squeezed into a given space on a satellite transponder. The Network 3 programs are transmitted at 384 kilobits per second to provide pictures of good quality for our educational activities. The major disadvantage of the technique is that the squeezing results in some loss of television picture quality; "smearing" can occur if the screen motion is very rapid and synchronization...
between picture and voice may be a problem if not properly adjusted.

The University of Nebraska Medical Center has access to Networks 2 and 3. We are presently using compressed video (Network 3) for much of our educational programming because it makes possible two-way video and audio communications and restricted statewide receive capabilities.

Figure 3. Present location of UNL Cooperative Extension Network receive sites.

Figure 4. Nebraska Public Schools TeleLearning Service (NDE/Nebraska ETV) receive sites are available for NEBSAT programming when not in use by the public school systems.

Some Current UNMC Uses of NEBSAT:

College of Nursing
- 23 hours of credit classes each week for Omaha, Scottsbluff, Lincoln and Kearney nursing students.
- 6 hours of administrative meetings involving faculty on all campuses.

School of Allied Health Professions (SAHP)
- Monthly interdisciplinary case conferences shared by UNMC SAHP students and Rural Health Opportunities Program students at Chadron State College (CSC).
- Rural Health Issues credit courses for all disciplines at CSC.
- Medical technology credit courses for students and administrative meetings for faculty in Omaha, Lincoln, Scottsbluff, North Platte, Kearney and Grand Island.

College of Medicine
- Interdisciplinary seminars with rural based medical and physician assistant students.

Special educational programming on demand. For example:
- Meyer Rehabilitation Institute’s seminars and conferences at multiple sites across the state.
- Medicine and family practice grand rounds from UNMC to rural-based residents and students.

If you would like to make arrangements to use long-distance television or if you would like more information about the system, please call:

Reba Ann Benschoter, Ph.D.
Director, Biomedical Communications
(402) 559-7100

University Geriatric Center, became operational in January 1991 to share programming with a similar transmitter located at Regional West Medical Center in Scottsbluff.

Compressed video hardware is also installed at Chadron State College, Grand Island, Norfolk, Columbus, Scottsbluff Panhandle Station, Kearney, North Platte and Lincoln, so UNMC communicates with those sites as well (Figure 1).

During spring 1993, UNMC is transmitting approximately 25 hours of programming per week using Network 3. On Network 2, the regular TV channel, UNMC can send programs to a number of Nebraska sites where University Cooperative Extension, the school systems or other agencies already have receive dishes and classrooms. Figures 3 and 4 indicate the location of some of the existing receive sites. The extension service has requested funds to greatly increase the number of dishes across the state.

At present, the Omaha area colleges and universities are coordinating their system and planning the most efficient ways of integrating and sharing both for effective local use and input to NEBSAT (Figure 2).

The dream of being able to share UNMC programs and classes with health care professionals, students and the public across Nebraska is rapidly becoming a reality through the generous commitment to satellite/video technology which has been made by Governors Orr and Nelson and our Nebraska Legislature.
Charges
At present, both transmission systems are available at no charge.
We are using NVCN on a pilot basis. After July 1, charges for use of this network will be $60 per hour, no matter how many locations are connected.
NEB*SAT use may require the services of technical personnel in the remote sites. Charges may be made for their services. In addition, long distance telephone charges may be accrued if talk-back capabilities are required from multiple sites.

For help in planning and scheduling your teleconference programs, call
Biomedical Communications
Extension 7102

Video Teleconferencing:
From UNMC
Across Nebraska

Nebraska Video Conference Network
Video teleconferencing allows you to:
- Communicate face-to-face with persons in other Nebraska communities.
- Save time and expenses of travel for meetings, classes, consultations and other activities.
- Show and see other types of visuals—objects, charts, photos, videotapes, etc.

UNMC participates in two networks which provide convenient teleconferencing across Nebraska: NEB*SAT and the new Nebraska Video Conference Network. Participation in both is coordinated by Biomedical Communications.

Nebraska Video Conference Network
The Nebraska Video Conference Network (NVCN) was established by the State Office of Communications and Nebraska's telephone companies. Compressed video and audio are carried over telephone lines to locations in eight Nebraska communities. The conference sites have high-resolution monitors and automated, easy-to-use transmission equipment.

A conference may link any or all of the sites on the network. Information on the NVCN is received only by the locations scheduled, so communication is completely confidential. Thus, the network is ideal for consultations, patient follow-up, and small group meetings.

UNMC's NVCN location is Room 4209, University Hospital.

Nebraska Video Conference Network Sites - 1992

NEB*SAT
NEB*SAT is a state-supported satellite television system which provides transmission services for educational applications. UNMC has access to NEB*SAT's Network 2, which provides one-way video and two-way audio, and Network 3, which offers two-way audio and compressed video communication.

Eleven Nebraska communities participate in Network 3. The system can handle up to 12 one-way or 6 two-way connections among those communities. NEB*SAT links are especially good for classes, conferences, large-group meetings, and continuing education programs.

UNMC faculty can participate in NEB*SAT from any classroom connected to the campus closed-circuit television system.

NEB*SAT Network 3
Compressed Video Network
Receive Sites
Business Initiatives

Electronic Marketing Resource Group, Dave Waldron, Kearney

"How a Small Telecommunications Business Started in the Middle of Nebraska"

Electronic Marketing Resource Group (EMRG) is a holding company for several vertical companies. We are involved in marketing using technology. The company was started in the 1970s using traditional software for the banking market. In the early 1980s we started a software company producing specific pieces of software for vertical markets, e.g. insurance, banking, etc. In 1985 we started a new company and become EMRG. We found that financing a technology company in the midwest is difficult.

In 1986, as we were trying to raise capital to go to the national market we discovered that lenders didn't understand the technology. We bought our competitor for $800,000. We still needed equity. At the same time the City of Kearney had applied for a $250,000 Community Development Block Grant (CDBG). The grant was awarded to the Buffalo County Development Corporation. They bought (via a stock arrangement) into our company. This deal helped stabilize our financial statement. We, in turn, committed ourselves to providing jobs for the Kearney area.

We are now heavily involved in the education market. We are the largest processor of Pell Grants with over 2 1/2 million transactions involving over $1 billion per year. We have now re-purchased Buffalo County's investment in company (for $36,000). We also purchased some preferred stock. This depleted our cash reserves and we are now, again, unable to borrow money. We are involved with the CDBG process again.

The point of this story is that things in Nebraska need to change. Nebraska has the good life and companies that use technology can prosper in Nebraska. By providing jobs companies can keep the youth here and help close technology and finance gaps.

Some private initiatives are being formed. Examples include the following:

- HBBA in Nebraska. This relationship is based on our need to do marketing. These would be "mind jobs" where people could do the work from their home using telecommunications technology.

- Nebraska Products Catalog. We are developing a catalog which markets Nebraska made products exclusively. We do not know when the initial mailing of this catalog will be. This is potential information for Nebraska Online. Watch for it.
Remember the Good Life Database. This is based on the assumption that there will be an economic development impact by people who now live outside the state but who want to move in and by those who used to live in Nebraska and want to return. This database would answer the quest for information about displaced Nebraskans.

We consider ourselves the new pioneers. The original pioneers used the Oregon Trail: We use the global telecommunications highway. Everything is different, but in fact nothing has changed.

**Cabela’s, Tim Miller, Kearney**

"How Small Telemarketing Companies Assisted Cabela’s"

I joined the company five years ago. We receive, on average, 9-10,000 calls per day. In December we received a total of 36,000 calls. We have a staff of approximately 650 people.

We had grown to the point that we had to find a way to handle the amount of calls we received, especially during our peak periods. This is where the small telemarketing companies helped us. Our original procedure was to hand write the orders as they came in. We are now using the same data terminals they use in Sidney. We utilize the Hamilton Telephone company and now transfer our calls to Aurora. We also have an agreement with WATS Marketing to help handle overload or emergency situations.

We use Nebraska’s companies because of the quality of people, work ethic and mindset.

Business continues to grow. We are now using the same technology as large metropolitan areas in others states. We have AT&T’s point of presence in Kearney.

Admittedly, we won’t be the first to employ new technology. We prefer to learn from others’ experiences and then use them.
Data Transmission Network Corporation, Charles R. Wood, Vice President, Omaha

Data Transmission Network Corporation (DTN) headquartered in Omaha is a growth-oriented electronic publishing/subscription and communication services company. DTN is a leader in the electronic delivery of time-sensitive market information that is targeted for mass markets. The company began operation in April 1984 and completed an initial publishing offering in January 1987. We employ over 300 people and by the end of 1992 DTN had approximately 70,000 subscribers. The average revenue per subscriber is $44.00.

DTN uses four different transmitting and receiving technologies to deliver electronic information services to its subscribers: FM radio side band channel; Ku-band satellite; C-band satellite; and Cable television. The company provides all of the equipment necessary for the subscriber to receive the service. A DTN receiver, specifically built for the company, translates the company's data stream into video text and has the capability to receive and display on a video monitor from 126 to 246 different pages (screens) of information. In addition, the receiver can download the data to a printer or directly to the subscriber's computer for further analysis.

The company’s revenue is derived from five main categories:

- Subscription income from the company’s three basic services: DTN AgDaily, DTN Wall Street and DTNergy;
- Service initiation income (upfront free) received from new subscribers;
- Additional services income;
- Advertising income; and
- Communication services income (E-mail).

The company’s first service and main source of revenue, DTN AgDaily, is an agricultural market information and quotes service. Approximately 80 percent of DTN’s AgDaily subscribers are farmers or livestock producers with the balance consisting mainly of grain elevators, agri-businesses and financial institutions.

The company first offered DTN Wall Street to subscribers in May 1989. The target market is financial institutions, financial planners, broker-dealers, corporate executives and individual investors.

Introduced in August 1990, DTNergy is a satellite delivered information and communications service for the petroleum and natural gas industry. Petroleum refiners use DTNergy to send refined fuel prices, terminal alerts, electronic funds transfer notifications, invoices, and sales and marketing announcements to their wholesalers. The DTNergy services also consists of several pages of delayed energy futures and options quotes plus the business news segment from DTN Wall Street.

DTN believes the keys to success are as follows:

- We are a growth oriented company.
- AgDaily has a commanding market share.
- We continue to research and develop new "niche-oriented" services.
- Employees have a significant stake in the company.
Government Initiatives

**Applied Information Management Institute, Robert Sweeney, Executive Director, Omaha**

**Definition and Mission**

The Applied Information Management (AIM) Institute is a nonprofit organization created by a consortium of business, education and government entities. The mission of the AIM Institute is to provide information technology leadership to the greater Nebraska community by focusing, coordinating and synergizing the resources of our educational, governmental and private business partners. The Institute will focus on emerging technologies and will serve as the catalyst for facilitating the information technology needs of Nebraska businesses and their employees.

**Background and Development**

It is increasingly evident that the economic health of a firm, industry, state, region or even an entire economy will be dependent, in part, upon its information technology strategies. In the coming era, networking and other information technology strategies that connect individuals and firms into local, regional, national, and international markets will be essential to sound economic growth and development. Just as in prior years, growth was dependent on access to waterways, railroads, highways and airports.

The Omaha community, seeking insight on how to maintain or strengthen the city and state business environment, commissioned several studies during the 1989-1991 period. All these studies documented, among other things, the need to bring focus to the area’s information technology infrastructure. The Omaha business community, with the full cooperation of the education and government sectors, decided to act upon the recommendation to create an institute to help make Omaha one of a handful of pre-eminent national information centers. Thus, Applied Information Management Institute was born.

**Economic Development Impact**

Information technology is increasingly becoming a more crucial component in a company’s development. Because of the advances in computer and communications technology, businesses are now considering new areas when making growth and location decisions. An excellent technology infrastructure -- equipment, education and employment base -- is a key element to a community trying to attract and retain businesses.

The AIM Institute will support and improve this area’s infrastructure through its services and activities, building an environment where companies will be better positioned to expand, create new jobs and find the well-trained, quality workforce they require.

With the technology available, the Institute will be able to facilitate this environment for the industry cluster in Omaha as well as throughout Nebraska -- opening the entire state for economic development opportunities.
Principal Activities

The AIM Institute uses Advisory Councils to provide the vision, agenda and direction for each of its three main activities. The main activities are as follows:

Continuing Education. Maintaining and improving necessary skills is a constant challenge with rapidly changing technology. AIM's founders placed great importance on continuing education. By facilitating relevant courses and seminars in the Omaha area and greater Nebraska, AIM provides a service which reduces travel time and expenses.

Curriculum Development. Support of colleges and universities in developing appropriate curriculums at all levels and enhancing curriculum for students and faculty through applied business experiences.

Applied Research. Facilitation of cooperative industry-university research focused on the application and management of emerging technologies for collection, manipulation, analysis and utilization of business data. The AIM Board set aside $100,000 to match fund AIM sponsored research initiatives.

Funding for the Institute

Five-year commitments from corporate sponsors have been received at four levels, ranging from Participating Sponsors, $350,000 over five years, to Supporting Sponsors, $5,000 annually. Funding has also been received from the Nebraska Department of Economic Development, and potential federal funding is being explored.

The Board of Directors is composed of seven participating sponsors and representatives from the State of Nebraska, three educational institutions and the Greater Omaha Chamber of Commerce.

AIM's challenge is to reach and inform as many people as possible about the benefits it offers to greater Nebraska and the region. For more information please contact the AIM Institute as 1314 Douglas-on-the-Mall, Omaha, Nebraska, 68102. Their phone number is (402) 422-3525.
Nebraska Online, Mary Jo Ryan, Public Information Coordinator, Nebraska Library Commission, Lincoln

Nebraska Online, the computer-supported information and communications component of the Nebraska Development Network, provides a variety of electronic information and communication services to economic development professionals, librarians, educators, and entrepreneurs. Nebraskans have access to a wide range of databases, unique information sources, directories, news services and other resources. The Nebraska Online events, calendar, electronic discussion groups and electronic message system facilitate communication among Network participants.

What Can Nebraska Online Do?

Nebraska Online provides timely, current access to unique information that can help Nebraskans compete in the global economy. As a key component of the Network, Nebraska Online seeks to improve the quality of local and statewide business environments and to facilitate and support community-based economic development.

How Does Information Sharing Work?

Information sharing depends upon community-to-community and region-to-region cooperation. It depends on an interactive cooperation between information gatherers, brokers, and users. It depends on professionals and volunteers dedicated to assisting, developing, and enhancing each others’ efforts to build community economic vitality. Citizens across Nebraska may obtain and share information by dialing into Nebraska Online, using any personal computer with a modem to access the following services:

Nebraska Development Services Directory lists Human, Community, and Economic Development Service organizations and programs. It includes local and statewide service providers that aid individuals or groups in development efforts, descriptions of successful community-based projects and an information referral and retrieval system for economic development.

Calendar of Events offers information about meetings, training sessions, workshops, local tourism activities, and other events. This has topic search capability.

Electronic News Service features announcements, job listings, newsletters, and press releases from state and local agencies and organizations. Also includes the capacity to send news releases to the press.

Bulletin Board Referral Service directs Nebraskans to a wide range of information from a variety of electronic services associated with business, agriculture, education, and other areas.

Electronic Databases offer full-text searchable access to Nebraska statutes, legislative bills, Attorney General’s opinions, and other state government topics. Detailed 1990 Nebraska census data, business, and trade information is also included. Other databases include a current listing of state jobs through the Nebraska Department of Personnel; a library catalogue listings of state and federal documents, videos and other resources for economic development.
Electronic Mail provides a statewide communications system for direct exchange and sharing of ideas and information through notes and messages between individuals and groups.

These information services are designed to help Nebraska individuals, community groups, and businesses succeed in the global economy. Development professionals and volunteers involved in regional or local human, community or economic development activities, can use this electronic information to further their efforts to improve the education and economic climate of Nebraska.

How to Access Nebraska Online

Virtually any microcomputer (IBM PCs and compatibles, Macintosh, Apple II, and others) equipped with a modem and telecommunications software can be used to access Nebraska Online. Your telecommunications software must provide VT100 or VT102 terminal emulation options. Software packages known to be compatible include Procomm and Procomm Plus. If you have problems after logging on, go to the "User Utilities" screen and run the "Check Hardware/Software" option.

After loading your telecommunications software, select one of the above terminal emulations, then set the following communications parameters:
- 8 Data Bits
- 1 Stop Bit
- Parity - "N" or "None"
- Full Duplex
- Transmission speed: 1200, 2400 or 9600 bps
- Flow control: XON/XOFF

Dial Nebraska Online at 800-392-7932 or at 402-471-4020.

Your computer is now connected to Nebraska Online. Press ENTER to clear the welcome screen (or press F1 for help screen). You will be asked to enter your name, address, brief information about your computer system, and a security password. At subsequent logons, you will only enter your name and password.

You will be able to read, download, and print all the information on Nebraska Online and enter items in the calendar. To load information into the News Service or Development Services Directory, request authorization from Vern Buis via electronic mail.

Volunteers and professionals across Nebraska are committed to helping groups or individuals access these information services. Nebraska Online Service Centers are located in some libraries, local businesses, courthouses, state agencies, Extension offices, schools, and/or colleges across Nebraska.

If you have any questions or problems or would like a referral to the Nebraska Online Service Centers in your area, please call the Nebraska Online Help Desk at the Nebraska Library Commission at 402-471-2045 or 800-742-7691.
MIDNET, Dr. Doug Gale, President, Lincoln

The Midwest Research and Education Network (MIDNET), provides access to the National Science Foundation Network (NSFNET) and the Internet community. It has the capacity to transfer 45 million bits of information per second. Advances in education and research can be accessed through low-cost, reliable, high-speed connections with midwest educational institutions, non-profit organizations, and businesses.

The Evolution of a National Research and Education Network (NREN)

The Internet systems was originally developed by Department of Defense. No one owns the system. They only utilize it. It is a distributive technology.

The Internet system is growing at a rate of 20 percent compounded monthly, that is, it doubles in size every year. Presently it connects over 1.3 million computers in over 100 countries.

MIDNET in Nebraska connects seven states in the midwest. The UN-L division is the largest component in the region. Twelve percent of Internet activity comes out of Nebraska.

Definition of a Network

These are the specific types of computer networks being developed

- Affinity Group Services Networks
- Generic Research Networks
- Basic Packet Delivery Networks
- Physical Transport Networks

The Newest NSFNET Backbone

What can you do on the NSFNET?

- Interactive computer login (TELNET)
- FTP - File translator
- SNMP - (E-Mail) Instant

Major Components of the Domestic Internet

- NSFNET
- ESNET
- NSI
- DARPA/Department of Defense Networks

The Evolution of the NREN

What are mid-level networks doing?

- Regional Connectivity
- Incorporation
- "For profit" numbers
- Alternative backoone connections
Afternoon Address - Monday, April 5

Local Global Teleports

Frank Odasz, Big Sky Telegraph, Western Montana College, Dillon

Summary of Address and Demonstration

We are looking at a national mission of citizen teleliteracy for all citizens: community networks. If we have the most teleliterate citizenry in the world, or if Nebraska has the most teleliterate citizens in the country, then national competitiveness or state-wide competitiveness is fully assured. What we are missing is grass-roots innovation. They have not yet been provided with the tools and technologies.

Information technology can be used locally so Nebraskans can succeed in the global economy. A Nebraska/national showcase for economic development citizen teletraining and education is discussed.

Frank Odasz described how Nebraskans can use information technologies to succeed in the global economy. A key to the process is to learn how to use a personal computer and to be able to link up with Internet, the world’s largest computer network.

He supported the national goal of developing teleliteracy through community networks. He described how groups like PLAN (People Linking Across Networks) and CSN (Consortium for School Networks) are helping bring about needed changes.

He emphasized that while the technologies can provide us with a boost, our values and common sense are what pull us toward what we want to accomplish.

Odasz demonstrated the capability of current technologies to allow people to use a computer and modem in their homes, schools or businesses to:

1. Search a global information network in a matter of seconds;
2. Communicate instantaneously with similar users in other parts of the world using e-mail;
3. Use Teledraw software to create art work on a video screen; and
4. Access K-100 learning in your own home.

Community Networking: Realizing the Potential of Personal Computer Communications

The shift from the industrial age to the information age threatens to be very costly in human terms. To succeed with this global transformation without dire transitional consequences is a monumental task. At a time in human history when unprecedented cooperation is needed, we actually HAVE the technology for mass participation. For the first time in human history, nearly everyone actually CAN participate, regardless of age, sex, race, religion, location, time available, and handicap. The opportunity exists for volunteer participation, from each according to their ability, to each according to their need.
The increased rate of change in today's world, marked by the fragmentation of the family and communities, threatens each of us. Personal computer telecommunications has the potential to defend each of us from being without the information necessary to succeed individually and to collectively protect our cherished lifestyles and cultures. Community networking is an idea whose time has come.

Not knowing what options exist, being an information "have-not," threatens to create a class of electronically colonized infopoor technopeasants. Rural Americans need the broadest possible teleliteracy to know their available options. The technology is already here! Low-cost notebook microcomputers with modems offer the most affordable, accessible telecommunications option available today, offering unprecedented individual opportunities, but few have yet learned of the power available.

Personal computer communications is the most versatile telecommunications technology available for connecting existing resources with human needs. We can begin today with intelligent, sensitive practical use of microcomputers and common phone lines to realize the potential without waiting for expensive "overkill" technologies. The inherent opportunity is available for each community to mobilize resident knowledge, experience and talent into a proactive community knowledge trust. Proactive librarians are needed to help inform community members about what information they will most probably need to survive.

Community information systems need to be created to fill in the missing gaps in the "vital" information currently available in rural communities. Each community has a right to know about shareable solutions and to act on this knowledge.

Our top-down government and corporate institutions need awareness of the successful telecommunications-mediated funding models that have empowered the ingenuity of rural individuals to generate the variety of bottom-up initiatives and innovations.

Bottom-up online microcomputer networks, with global capabilities, are now defining how telecommunications technology best fits the needs of individuals and communities. Despite billions of dollars invested in telecommunications infrastructures few dollars are spent teaching citizens their available options for purposeful use of telecommunications. Nowhere is there a more glaring omission than with microcomputer telecommunications.

Inexpensive modem communications, using existing personal computers, with access to a free, local, school-based community bulletin board system, can dramatically raise the teleliteracy of the entire community. A local bulletin board system with global Internet e-mail exchange capabilities can prepare a community for the day when ISDN, direct, Internet protocol nodes, and/or multimedia fiber optic systems become available. There is a very real need to prepare our community cultures for the upcoming information technologies.
There appears to be emerging within the educational technology reform movement an unmistakable trend toward community outreach, lifelong learning, and integration of the school and community through the convenience of modem communications. There is a growing emphasis on teaching using real world problems, and on showcasing the community-wide relevance of ongoing K-100 science/math learning, particularly as it relates to competitiveness in the emerging global economy.

The challenge is now less teaching of a new info-based sociology than a changing of our culture of group interaction through the education of new communications mediums and behavior patterns. This infocultural re-education must have at its heart edumentorship between all levels of community members and spirit of motivated community learning.

Learning by modem is something that must be experienced to be understood. Teaching by modem is a skill anyone can exercise to share their knowledge and expertise on ANY subject. The awesome challenge is how to comprehensively and effectively teach the creation of, and active participation within, fruitful, virtual learning communities, locally, regionally, nationally, and internationally.

Every one of us must learn to become an electronic citizen of the information age. We cannot afford the human costs of letting a percentage of our community members miss out on the survival skills they need. Mastery learning and learning partnerships become vitally necessary and are actually conveniently feasible.

Action is the watchword, marked by the proliferation of low-cost community networks (BBSes) which can be installed on PCs, Macs or Iles, to be located in homes, schools, libraries and businesses. They offer local choices for customization, cultural orientation and free access to community discussion forums and information selected for dissemination. The smaller the discussion group, the more frequent and higher quality the interaction, making community networks the logical seedbed for innovation, inevitably branching out to other networks for more expertise and information as initiatives develop.

The global race for economic leadership will depend on which nations can most quickly and thoroughly empower their individuals with the equipment, training and vision to fulfill their maximum potential in this unprecedentedly rich infomarketplace. Individual collections of specific information and services can quickly find a global market, distributed among widely scattered individuals linked conveniently by asynchronous telecommunications.

Though the potentially huge mass market for information services is still emerging, logic suggests that fun and friendship would be the most sought out information services; interaction with others in the uniquely mind-to-mind intimate communications medium.
The joy of sharing the learning experience is heightened with a sense of united purpose. Growing self-esteem through acquisition of new skills creates the desire to teach others and a wonderful self-perpetuating cycle begins.

Relevant ongoing telecommunicated science math education MUST begin to include all community members and highlight global economics, small scale computerized manufacturing methods with new materials and telepreneurship. Minigrants for individuals to innovate with telecommunications and entrepreneurship would begin a Johnny Appleseed reflowering of American individual entrepreneurship, of technoindividualism!

The odds are great that 5 billion individual imaginations, suddenly connected and empowered by inexpensive notebook computers and free public global telecommunications through local community networks, would bring forth the liberating collaborations the ultimate promise of educational freedom and connectivity holds for all humankind. Electronic citizenship in the global community would mean we would all be armed with the facts to begin each day with the best solutions available through maximum connectivity at minimum cost.

**Background - Big Sky Telegraph**

Big Sky Telegraph (BST) was created by grants from the USWest Foundation of Montana and the M.J. Murdock Charitable Trust. Its object is to train rural teachers in knowledge-access skills and to serve as a cooperative for individuals and organizations who could benefit from the advantages of online telecommunications. BST went online January 1, 1988. Western Montana College received a grant from the Intermountain Community Information and Library Services Program to create a two-credit online course entitled "Computer Literacy on the IBM" as a means of providing microcomputer skills training at the students’ location and choice of time.

Big Sky Telegraph plans to attract funds for much more training to create more hard examples of economic development successes and to set up other online systems that can be linked to global networks. Grass-roots leadership appears to be the most productive strategy toward demonstrating the potential.

For more information or to be added to Big Sky Telegraph’s mailing list contact Big Sky Telegraph, Western Montana College, Box 11, Dillon, Montana 59725. Or call (406) 683-7338. Or contact via Internet frank@bigsky.dillon.mt.us.
Keynote Address - Tuesday, April 6

How Information Technologies Transform Rural Communities

Dr. Don Dillman, Washington State University

Summary

Electronic information is the catapult for the 21st century, and operating a computer will be fundamentally necessary in the 21st century job place. Information technologies are transforming rural communities – including how people can make a living, how business gets done, and even who can live there. Technological development and speed have made the world less remote. The age of telematics, of the information age, has gone past the insurgency stage to now being directly in front of us and cannot be ignored.

American society is in the midst of a fundamental transformation and a critical juncture. Formerly its reliance was on petroleum, natural resources, large assembly lines under one roof and millions of identical products. Now information is being substituted for some of these resources in producing goods and services. Whereas nearly 80 percent of American workers were engaged in manufacturing or agriculture early in the century, that proportion has dropped to about 20 percent. Most Americans are now engaged in providing information-related services.

The ability to manipulate information through telecommunications and computerization will occur at all levels of society. Producers can make exactly what individual customers want and deliver it to them regardless of distance or cultural boundaries. This doesn’t necessarily need to occur in a large company in a large city. Nowadays, few people live in rural America out of necessity compared to the days when most people were engaged in farming, forestry and mining. To survive, rural communities must become "telecommunications smart."

Rural America’s survival is dependent in large part on its electronic and fiber optics connections. Electronics and fiber optics can connect rural areas to the hubs of metropolitan activity, making them more attractive for business. Old telephone lines that cannot handle modem and fax transmissions at high speed and long distance charges that keep rural people from having toll-free access to data user services are as much a barrier to rural development as were poor roads and bridges in the past.

To thrive in the information age, rural areas must think about new kinds of businesses and get past the idea that service jobs mean mostly flipping someone else’s hamburgers. Rural people must have computer skills and understand how to use telecommunications services to their advantage. Virtually all white collar jobs, and many -- if not most -- blue collar ones, by the end of this century will require computer literacy. Rural people must also learn foreign language and cultural-sensitivity skills which are increasingly necessary to profitable participation in the world economy.
Address

James Michner’s book Centennial provides a background to this discussion of how information technologies are transforming rural communities. The book has four important themes that are applicable:

1. There is a succession of eras for any one piece of land.
2. In most cases there are signs that forewarn the changes in eras.
3. The signs of change are usually ignored.
4. There is often resistance to the changes of eras.

When examining the eras in rural America, it is possible to identify three: one that is still in effect, one that has peaked, and one that is emerging. That is what this speech will do. In terms of social and economic organization, the three rural eras are:

1. Community Control. In this era everything that was needed by rural residents was readily available. Rural communities were self-contained. There was a focus on the family unit.
2. Mass Society. In this era things are produced in large quantities. Standardization of goods and services is the rule. Organizations are large and hierarchically arranged.
3. Information Age. In this era information is substituted for labor and resources. There is no need for warehousing of goods. The information age has changed the nature of the work force--more people are managing information.

It is possible to learn about the factors that influence rural economic development by examining the three eras.

Dominant Form of Work Organization:
  Community Control - Small business
  Mass Society - Large, vertically integrated corporations
  Information Age - Temporary affiliations with network partners

Markets for Products:
  Community Control - Local and regional markets
  Mass Society - National markets
  Information Age - World wide markets

Product Orientation:
  Community Control - Hand crafted
  Mass Society - Mass produced
  Information Age - Individually machine designed

Source of Feedback on Ideas:
  Community Control - Neighbors
  Mass Society - Organizational hierarchy
  Information Age - The market

Barriers to Product Acceptance:
  Community Control - Community acceptance
  Mass Society - Mass acceptance
  Information Age - Individual customer satisfaction
Farmer's Orientation to Production:
   Community Control - Balanced
   Mass Society - Single major commodity
   Information Age - Multiple value added products

Contribution of Telephone to Productivity:
   Community Control - Party line (local planning)
   Mass Society - Voice-to-voice long distance (corporate organization)
   Information Age - Machine-to-machine (instant access everywhere)

There are some potential problems for telecommunications in rural areas: disaster proofing, advanced services, cellular services, alternative long distance carriers, toll-free access to data networks, long distance boundaries, adequacy of trunk line connections, quality of lines and transmission rates, digital switching, party verses private services and universal services.

Repetitive Time Cadences:
   Community Control - Seasons and years
   Mass Society - Weeks and months
   Information Age - Hours and minutes

Power:
   Community Control - Hand mechanics
   Mass Society - Petroleum and electricity
   Information Age - Computers

Workers Equipment:
   Community Control - Hand tools and animals
   Mass Society - Machines and mechanics
   Information Age - Computers and telecommunications

Dominant Inexpensive Tools:
   Community Control - Hand tools
   Mass Society - Electric motors
   Information Age - Computers

Highly Valued Work Skills:
   Community Control - Crafts
   Mass Society - Assembling
   Information Age - Manipulation

Most Valued Corporate Resource:
   Community Control - Land
   Mass Society - Plant and equipment
   Information Age - Symbolic, analyst worker

New Work Forms:
   Community Control - Cottage industries
   Mass Society - Huge assembly lines
   Information Age - Telecommunications
Linkage of Rural Towns to Urban Cities:
Community Control - Independent
Mass Society - Dominance by cities
Information Age - Interpenetration (non-hierarchial)

The above facts should be considered before proceeding.

What rural communities should do to attract and create jobs:
1. Focus on computer usage (need to learn early in life)
2. Teach about diversity (we now have a world market)
3. Realize that there is no natural pull to rural areas in the information age (like agriculture)
4. Learn new ways to do things

Background Information - Dr. Don A. Dillman

Dr. Dillman received his B.S. in Agronomy (1964), M.S. in Rural Sociology (1966), and his Ph.D. in Sociology (1969), all from Iowa State University, Ames, Iowa. He then joined Washington State University as an Assistant Professor in September 1969. While at Washington State he has held many positions including Coordinator of the Social Research Center’s Public Opinion Laboratory; Chair of the Department of Rural Sociology; Acting Community Resource Development Program Leader for the Cooperative Extension Service; and Acting Chair of the Department of Child and Family Studies. Dr. Dillman was appointed to his present position as Director of the Social and Economic Sciences Research Center in February, 1986. His administrative responsibilities include Washington State University’s survey research facility which conducts approximately 40 survey-related projects each year utilizing mail, telephone and/or face-to-face survey methods.

Other distinguished service and appointments held by Dr. Dillman include Fellow in the Kellogg Foundation’s National Fellowship Program; 1983-84 President of the Rural Sociological Society; Guest Professor at the German Center for Survey, Methods and Analysis in Mannheim, West Germany; Instructor at the University of Michigan’s Annual Summer Institute on Survey Research Techniques; and Fellow of the American Association for the Advancement of Science.

Dr. Dillman has an active research program which blends efforts to improve survey research methods with the study of issues affecting rural America. Current projects concern impacts of information technologies on people and institutions and the adoption of new technology by farmers. He is on a two-year intergovernmental personnel agreement assignment at the U.S. Bureau of the Census where he holds the newly created position of Senior Survey Methodologist in the Office of the Director and is conducting research on new procedures for conducting the Decennial Census.
Morning Address - Tuesday, April 6

Senator Robert Kerrey

With Governor's Nelson's help and through the Department of Economic Development Steve Buttress is holding a conference in Kearney to talk about telecommunications and communications technology and its role in creating jobs in Nebraska, its role in improving the way that we accomplish the job of educating our children and training our adults, its role in improving the quality of health care and role in helping us control the cost of health care. I see communication technologies today in America creating a lot of new jobs. It is apt to be that it is going to create entrepreneurs of all business people. We have got to make an effort. We have got to do more research in those technologies. There will be an opportunity in the Clinton administration as they direct more resources into the civilian base research. If we want to take advantage of this opportunity we are going to have to be a partner and do it here in Nebraska. There will be opportunities if we make the effort to train ourselves individually. There are some regulatory changes we need to make to ensure that we develop the several different kinds of networks that are going to be needed to bring these opportunities into rural America.

I am here because I see tremendous opportunities for jobs. I am here because I see tremendous opportunity for us to become wealthier as people. I see a tremendous opportunity to use this technology in the classroom, as well as the home, to teach our people. And I see tremendous opportunity in the delivery of health care services and the improvement of the quality of health care in the state.

There are a number of areas and a number of agencies of government that will have the responsibility for communications technology: the Department of Commerce, the Department of Defense (formerly the defense advance research projects agency), the Department of Energy, the National Aeronautics and Space Administration. There will be various agencies shifting from defense technologies to either use technologies or to straight civilian technologies.

What the Clinton administration is going to do is to create an environment that will encourage business in the private sector in order to promote jobs and encourage rural investments in the public sector in order to do the same. On the public side, not only do we need to do research, but we also need to provide opportunities for individuals to acquire the skills needed to be able to handle the technologies and be able to see real business opportunities for the technologies, not just theory. That is what is happening here today.
What the State Department of Economic Development is doing here today is bringing this technology out and saying, here it is and this is what we can do with it. There are unmet opportunities here that offer the potential to generate new wealth, new businesses and new jobs but we have to seize the opportunity. If we don't seize the opportunity, those jobs are apt not only to go to other parts of the country, they may go to other parts of the planet.

Many you are in the business of providing telecommunications services so much of what will occur in rural America will occur as a consequences of your efforts.

I do see tremendous opportunity today both because of what is going on in the private sector -- which I find to be all together exciting with the advancements of technologies itself occurring at a very startling pace -- but also as a consequence of the election of Bill Clinton and Al Gore. They are prepared, for a variety of reasons, to shift the emphasis from defense technologies into either dubious technologies or straight civilian technologies. Not that the government is becoming a selector of winners and losers, but the government is out there doing research efforts in free competitive technologies. In addition, I see this Administration being aggressive in wanting to make sure that there are no regulatory restrictions for the forming of technologies. I see the Administration as being willing to push for the development of standards so that we, in the private sector, aren't massively confused about what is there. So if opportunity occurs, I see the Administration as being willing to establish critical tests bids so that real partnerships can develop between the private sector and various government agencies. Whether it's the Department of Energy, the Department of Defense, NASA, the National Center for Atmospheric Research or other agencies out there, that tremendous technical capacity could be used in partnerships to test out the application of communication technology for health care, the application for education and the application for job training and adult skill development.

Communication technology, it must be said at the start, is exciting to me because of the opportunity for the generation of new wealth and, right along with that, the generation of new jobs. It is exciting for me as well because it offers a tremendous opportunity for us to teach and learn in ways that we have only dreamed about in the past and finally, it offers us tremendous opportunity to overcome geographical barriers and to be more efficient in delivering high quality health care services as well as the training that professionals need to keep their job skills current. Those are the three large areas: job creation, education and health care. There are others that are important but those are the three dominant ones.

It will fall to us as people to determine what it is we are willing to do. I will point out particular to communication technology, but with other technologies as well, that very often there is a bad news side with the development. You really see it with communication technology. In today's workforce there is perhaps more insecurity on the job than there has ever been, at least in my adult work life. That insecurity has come as a consequence of four big factors. The first is that, the workplace is now an international workplace. There is global competition, not only in manufacturing, but also in services as well. We may object to certain provisions of the North American Free Trade Agreement. We may say that we want
our American representatives to vote against it. We may say that we don't like the general agreement on tariff and trade. We can complain until we are blue in the face about unfair trade competition, but the fact of the matter is, you can move a factory today, a high-tech factory, to Malaysia and if you choose to do that you could develop and sell services all around the world. The good news is Communism has gone, if not down the toilet, certainly its moving in that direction. The bad news is now we have a billion Chinese that could use capital. We have to be conscience of that. Certainly people who are in the workplace today understand that that contributes to one part of their insecurity.

The second big force that is going on in the economy today is that not only are we automating manufacturing but we are automating services as well. If people in the back office doing inventory (and there are about 15 million Americans who do that) understand, watching the advancement of computer technology particularly in software, that their job is at risk: They feel insecurity as a consequence. Even somebody who has a job as a high-skilled programmer of computer software understands that today a computer can do a job in a hour where it took eight hours just four or five years ago: That also tends to engender insecurity.

The third big change is that we have significant down-sizing that is happening as a consequence of a decline in demand. Secretary Chaney was here speaking to the Founder's Day Club of the Republican Party in Kearney. One of the things that he pointed to was that this down-sizing in the military is producing insecurity and morale problems in the military. The military is not alone. If you work for IBM today, a corporation that thought mainframe computers were going to be the future, you feel a similar insecurity. If you work for Sears, you feel insecure. If you work for Boeing, you feel insecure. If you work for Hughes Aircraft, you feel insecure. There are many large businesses today where insecurity is the rule not the exception.

Now the last big change in the work place is that employers today are increasingly trying to contract temporary part-time help as a consequence, in part, of the many costs of health care, retirement and workmen's compensation, but also just because it provides them with the kind of flexibility that they feel they need to stay competitive. It begs the question of whether or not our social safety-net is as flexible as it needs to be. I argue emphatically that it is not. That is for a separate discussion. I am here only to observe that it is communication technology that has very often produced the forces that have generated workplace insecurity. There is very little we can do to stop that. There is a lot that we can do to provide our people with the opportunity they need to not only upgrade their skills, but also to provide opportunities to generate new jobs and new wealth for communication entrepreneurs.
I know there are people here who are not from Nebraska, but as a Nebraskan trying to figure out what we need to do to create jobs I will address a number of areas that I think will provide the kind of changes that we need, the kind of skills that we need and the opportunities that we need to create jobs to take advantage of communication technologies.

The first issue is our network. What kind of network are we going to have? I believe we make a mistake if we do not change the word network immediately to networks. If we try to build a single network I believe that we will have made a rather monumental mistake. It will limit the application of technology. I believe we are going to have networks inside of networks inside of networks. So what has happened, it seems to me on the long distance side, is we have seen a tremendous amount of competition that has allowed us to deploy significantly upgrades in technologies. It has allowed us, as well, to create new wealth and to create new jobs. It has created some insecurity as well. But I believe that the competitive marketplace, with some occasional enlightened government assistance, has worked.

I believe that there will be other things that we have to do in order to secure the development of these networks inside of networks. Significantly, here in Nebraska we are looking at the possibility of going to the Public Service Commission to see if it is possible to get an educational tariff in place. If you are a school making a call onto the Internet you have to make a long distance call. It can be extremely expensive. The Department of Education has been struggling to keep 1-800 lines open. It is extremely difficult and costly. I would argue, that with some exceptions, we should not ask property tax payers to pick up the tab for that so we are exploring the possibility of an actual educational tariff that would allow telecommunications businesses to be able to provide those services and would give schools, every school in Nebraska, contact with the Internet with a local call.

The second big area is our significant amount of deficiency in training. The technology has developed very fast and very quickly and there are far too many of us, far too many of our citizens that simply don’t have the skills to handle this new technology. People don’t have the same sense of urgency that they had with the telephone. With the telephone you could understand immediately what was going to happen to you if you didn’t have dial tone. As a consequence we were able to regulate for the achievement of universal service. You could feel the urgency, because you could image what it was like not to be able to make that call out, to be able to get contact with the outside world if something happened inside your home. The same sort of urgency is not felt with teleliteracy, and thus it falls to people like us to create that kind of urgency.

If we could go from approximately 70-80,000 household in Nebraska where someone in their household is teleliterate to 2-300,000 households that are teleliterate, I believe that just that single act would add $5-600 in personal income to households in the state of Nebraska. There is an immediate cause and affect relationship with acquiring that skill and your income. Moreover, I believe that there is an immediate cause and affect relationship with developing people that will be the entrepreneurs of tomorrow and acquiring that skill.
understand that there is an effort involved (I am prepared to insert parenthetically that no really good thing occurs without somebody being willing to make an effort) but it will fall to us to make the effort, as adults in particular, to acquire this skill.

I have a real sense of urgency to urge Nebraska adults to acquire this technical capacity. I urge them to acquire that technical capacity in the household; to use it in the household to manage the budget; to use it in the household to have children learn; to use it in the household to get out into the marketplace (which you unquestionably can today through the Internet and other sorts of networks); and to use that capacity to make judgments about what it is that you are going to do.

There is a significant training deficiency today not only in the state of Nebraska but throughout the entire country. Perhaps in the next couple of years manufacturers will come up with a piece of equipment where all I need to know is how to turn it off and on. If I can open a beer can, they tell me, I ought to be able to operate a computer. I don’t happen to believe that that will happen. I happen to believe very strongly that there is a direct connection today in the information era where knowledge properly applied means jobs and money. There is an incentive for us to make the effort to acquire that knowledge. It is going to be difficult for us to have school boards that can make decisions. It is going to be difficult for us as adults to make quality decisions. It is going to be difficult for the community to decide what it is we are going to do, unless we make the effort to become teeliterate.

The last mediary for me is that as a state we need to decide which areas of research are we going to focus on: Which areas of leading pre-competitive research are we going to do? We are not going to be able to do it all. Nebraska is not going to be able to do what Colorado does. Colorado is not going to be able to do what Nebraska does. But I believe that there is every bit as strong of a connection between this type of research as there was with agricultural research. Almost every single citizen of Nebraska understands how much productivity we gained and how many new jobs we created as a consequence of doing research at the University of Nebraska-Lincoln at the Institution of Agriculture and Natural Resources. We have got to pick out a few things and say we are going to do research in this area: maybe it is in storage; maybe it in some narrow area of fiberoptics; maybe it is in...who knows what it’s going to be in. The community has to make that kind of decision. The Board of Regents will have to come to the Legislature. The Legislature will have to come to the Governor. We have got to make those kinds of decisions as a community. But make no mistake about it there will be a direct cause and effect relationship between our capacity to create jobs, our capacity to solve problems in health care and education and our willingness to make this expenditure of our revenue and our time to learn how to use these technologies.
One of the fears that I have with technology is that human beings are getting left out of the loop. I mean, how is it possible for this technology to push us around? I believe it is extremely important for us to declare what our human values are. What do we want it to do? What is its purpose? I don’t believe that God put us upon this earth to be good and efficient shoppers only. I wonder if we are here on this earth to rush to the telephone and order the latest merchandise on QVC. I want QVC to make a lot of money. I want them to be profitable. I want you all to make a lot of money. But I think there is a higher purpose. We have got to consider that purpose particularly as we apply the technology to education and, particularly, as we apply the technology to health care. There are human values. We should run it, not the other way around.
Nebraskan’s Information Age Skills and Networking Experiences

"An Information Age Profile of Rural/Small Town Nebraska Households,
Dr. John Allen, Rural Sociologist, Department of Agricultural Economics,
University of Nebraska - Lincoln

Introduction

In order to determine the level of involvement, the type of technology, the nature of skills, the number of home-based businesses, and the location of Nebraska households in the information age, a survey was conducted in 1992. It was completed by the Bureau of Sociological Research, University of Nebraska - Lincoln, as part of the Nebraska Annual Social Indicators Survey (NASIS). A series of questions relating to information age technology was included as part of the survey. There was a random sample of 1,900 Nebraska households selected as part of NASIS.

The study focused on examining home-based businesses, computer technology, and use of different tools as evidence of participating in the information age. In order to determine if there was a difference between rural and urban usage, the data on information age participation was divided by location. Participation was grouped by where the household was located: farm, open country, town less than 10,000 population, and city over 10,000 population.

Findings

Because of the importance of communications and computer technology to place of employment, it was felt that operating a home based business or working out of the home was strong evidence of information age technology. Table 1 shows that a high percentage of farm households have home-based businesses.

Another important component of information age technology is the level of computer technology usage. Table 2 shows this usage by location. Rural and small towns use computers regularly.

A final aspect of the information age pertains to the usage of other tools of the information age: distance learning, computer modems or satellite access, and fax machines. The use of these tools by location is included in table 3.

Overall, rural areas do not lag behind urban areas in Nebraska in their participation in the information age.
Table 1

Incidence of Operating a Home-based Bus. or Working out of Home

Table 2

Computer Technology Use by Location of Residence

Table 3

Use of Information Age Technology by Location
A decade-old vision that became reality with the electronic connection of five Sandhills schools classrooms was shared by Broken Bow School Superintendent Don Vanderheiden. The system is known as the Sandhills Technology/telecommunications Educational Project (STEP).

The system, regarded as a state model, allows classes to be shared at all five schools: Sandhills at Duning, Anselmp-Merna at Merna, Broken Bow, Ansley and Loup City. Subjects such as foreign language, physics and other advanced courses might otherwise be too costly for the schools to offer. The system allows the instructor and everyone involved in the particular class to see and interact with each other. Eighty-three miles of fiber optics connect the schools.

Vanderheiden first had a vision about such a system in the mid-1980s, and said the system had done marvelously. The teachers have adapted well, and the students think of it as their own system.

The fiber optic network was installed with $393,000 from the Nebraska Legislature. The network lease costs each school almost $12,000 annually. "We feel that it is justifiable because of the flexibility," Vanderheiden said.

For any organization considering a similar system, he suggested seeking professional assistance for a sound feasibility study. Also, he said to seek the advise of an expert who keeps abreast of ever-changing technological advances.

"Involve the community and your staff," Vanderheiden suggested. "Select good teachers and adequately train them -- a system like this amplifies good teaching."

A second phase of electronics is the installation of an uplink/downlink satellite network. The satellite will connect the five communities to all the institutions of higher education throughout the state for continuing education to benefit students and adults.
Luncheon Address

Lieutenant Governor Maxine Moul

I think back to the business I was involved in before becoming a part of state government. I was in the newspaper business for almost 20 years and the amount of change that happened in those 20 years was absolutely incredible. I am afraid that there has been an even greater change in that industry during the last 3 years. I am going to have a hard time catching up when I leave state government and go back into that private industry. I know that each of you here today have witnessed some tremendous things happening in the field of technology and telecommunications. I am sure that you have all added some new words to your vocabulary and have gotten new ideas on what can happen within your own businesses, your own communities and in this state in information exchange and building partnerships.

We are really breaking ground with this conference. As you look at the program you will see the people who were involved with putting this together. It is an indication of the partnerships that have developed over these last six years.

Nebraska and its communities have demonstrated many times their ability to adapt and meet new challenges. Through our 126 years, and the years prior to our statehood, we have really experienced three separate and distinct economies. The first was with the Plains Indians, before the pioneer settlers. That economy was truly an economy with nature and was the forerunner of sustainable agriculture. The second economy was of settlement, town builders, and homesteaders, where over 700 communities were established in the state and Nebraska’s population mushroomed in a short time. That is when our homes and our ranches were developed and our towns were developed. The third economy then was industrialization and mechanization. Our farms changed and our ranches changed: They became much larger. The state very conscientiously moved towards industrialization and a more diversified economy.

Nebraska is now facing the challenge of building its fourth economy. We are, as never before, part of a highly interconnected and competitive world economy. I am confident that Nebraska will successfully meet these challenges. But the success of each of our 535 communities today will depend not only on what Nebraska as a state does, but also on what each community does to insure its own future. In the 1990s and beyond the goal of Nebraska’s development effort are people, businesses and communities succeeding in this new global economy and society. To a large extent the future of every community rests with its citizens and their capacity to rebuild their community in ways that ensure success in this fourth economy.
Two decades of experience make clear that community citizenship with all levels of government and private industry -- state, federal and local -- share our interest in the future of our communities operating in a global economy.

The communities that will be successful in the 21st century, the global communities, are communities that understand that their success or decline directly relates to actions taken or not taken today. Global communities are communities that are smart and aggressively take responsibility for their economic future. They focus their vision, human energy and resources on the kinds of investments that will contribute to community success. Some of those important investments, of course, include people, but also vision, action, community development and economic development. People do make the difference. They build families, enterprises and communities. Global communities focus on people first by investing in their own citizens' capacity to succeed in this fourth economy. They actively seek broad community involvement and development efforts. They welcome the involvement of men and women, youth, the elderly, minorities - all of their citizens - in civic and development organizations.

Global communities know that they have to regularly renew leadership. By involving new leaders they create opportunities for existing leaders to recharge themselves. Global communities invest in their citizens by supporting the development of leadership skills and capacity. Action must be visionary, aggressive and sustained. Global communities are communities that dream and work hard, day in and day out, to realize their dreams. They know that the best ideas and sound solutions to development are often to be found in their own community or in the community down the road. They partner with the best in their region to support development efforts. They actively use outside resources and supportive efforts, but do not depend on outside experts or resources for their success.

Global communities participate in programs like the Community Builder's Academy to ensure the development of new leaders. They understand that vision without concrete plans remain simply a dream. These communities realize that their community needs a living, comprehensive, strategic plan that is used to guide the community's visions into successful action. Global communities know that visions and plans without action simply create more dusty reports for development office shelves. They take charge of the future. They understand that their future is not tied to any one industry, the state, or even federal government, but that their future is the community's own responsibility.

Community development must be smart. Every community, even the largest city, has finite resources. Global communities must be increasingly smart in how they invest in community betterment. They understand that their first responsibility is to provide sound public and private infrastructure: streets, health care, local services, utilities, schools, parks, libraries and on and on. They invest wisely and ensure there is a long-term balance between the citizens' ability to pay and the kind of community infrastructure that can be maintained.
They know that their schools are more than education centers for K-12 students. They see their schools as community schools, available and capable of addressing broader community educational needs. In global communities, schools are community and educational centers. They realize that in the 1990s and the 21st century telecommunications are fundamental to succeeding in the world economy. Global communities are acting today to understand the opportunities of telecommunications and ensuring that their community is inter-connected. They use Nebraska Online and other informational tools.

Economic development, of course, must be effective. In the previous century, Nebraska communities would have never have become realities if it had not been for the hard work and innovation of town builders. Global communities, even very small communities, must have substantial, aggressive and smart economic development initiatives. A community of 1,000 residents is a $35-45 million enterprise. An enterprise of this size requires daily investment to ensure its economic vitality in the future. Communities realize that they must act to support new business start-ups and growth in existing businesses. They have small business development programs making use of the services of the Business Development Center. They have a chapter of the Nebraska Homebased Business Association and they support micro-lending enterprise programs.

Global communities know that the key to successful enterprises, whether public or private, are productive workers. These communities undertake to ensure that all workers are skilled and trained to be competitive in the decade ahead. They realize that technology, skills, tools, and knowledge are more important today than ever in economic and community success. They act to help their citizens and enterprises access and use new technology to ensure personal and community economic success.

Global communities understand that the marketplace has grown tremendously since World War II. Consumers of what we produce and our competitors may be half-way around the world. They act to assist enterprises in understanding the opportunities and the challenges of the growing world marketplace. Global communities appreciate the importance of youth and retirees to their economic future. They work hard to create local economic futures for the youth and seek to keep senior citizens active and contributing members of the community.

Global communities, particularly in non-metropolitan Nebraska, understand that agriculture is central to the economic future of Nebraska communities. They reach out to the agricultural community and seek real partnerships in strengthening global agriculture. Global communities pursue realistic industrial recruitment. These communities understand the possibilities and position themselves with sound recruitment strategies that can result in success. And they are open to other forms of economic development, including the potential of tourism.
Finally, global communities -- whether in Omaha or Ogallala or Oakland -- understand that in today's economic environment entire countries in Western Europe are cooperating to build successful economies. Multi-community collaboration is not just a good idea, but a necessity. Global communities in the 1990s are creating real partnerships with towns down the road, or in an entire region, in order to achieve development goals unobtainable by individual communities. We have a strong future in our state as we move into our fourth economy. This conference is another strong step towards helping our communities become global and to build the partnerships they need to succeed.
Community Showcases

Twelve-school Water Study. Using computers and a telephone network system linking schools and agencies, students studied and debated water issues. Paul Ekberg, an Orleans teacher, received a Readers Digest Award for this program.

Jeff Smith, Teacher, Orleans High School

Sandhills Technology/Telecommunications Project. Five schools used fiber optic cable and two-way satellite communications to share classes this past semester, utilizing computer and fax connections between five classrooms.

Dan Vanderheiden, Superintendent of Schools, Broken Bow

Hamilton Telephone Company. In addition to local telephone services, this local firm branched out into cable television, telemarketing, and services for those with hearing and speech disabilities, in Nebraska and Idaho and toll operator services for some South Dakota companies.

Gary Warren, Vice President, Hamilton Telephone Company, Aurora

Eilers Machine and Welding, Inc. This firm builds upon customers' plans to build fabricated parts. Computer Numerical Control (CNC) and Computer Aided Design (CAD) systems are used in design and manufacturing.

Brian Eilers, President, Eilers Machine and Welding, Inc., Lexington

The year after Brian Eilers of Lexington bought his machinery repair business, the farm economy began to slump. Three years later, he expanded his business to include manufacturing.

Eilers had worked at the Sperry New Holland farm implement manufacturing plant in Lexington for nearly 10 years before starting his business in 1983. For the next three years, the farm economy was so depressed that Eilers lost a fourth of his customers.

Business was not good at Sperry either. In 1986, the Sperry plant closed; Eilers saw an opportunity. He knew the machines and the people who ran them. He purchased several machines and moved them himself into a self-designed building. He is now president of Eilers Machine and Welding, Inc., which has 20 employees who do anything from repairs to government contracts.

"No matter in what economy, there is opportunity and potential out there -- it's just the matter of having insight and foresight to go with it," Eilers said.

"If you're interested in starting a business, start saving and learning and doing whatever you can," said Eilers, who worked two and three jobs to save money to buy his business.

"It takes more diligence and effort than you are ever going to given to an hourly job," Eilers noted.
Burnington's Inc. Using computers, telephones, and fax machines, this firm (which exports USA-made parts for railroad locomotives and mining equipment) does business with clients worldwide. The lower overhead of a rural community allows the firm to be competitive in their bids.

David Burnett, Burnington's Incorporated, Alliance

What might result from the unlikely combination of locomotive and mining spare parts, a native of England, and the western Nebraska city of Alliance?

More than a Sandhills curiosity, Burnington's Inc. is a successful business for David Burnett.

Several years ago, the former New York resident had his home, family, business and finances all invested on the East Coast. To be financially operative, in 1989 Burnett moved the company to his wife’s native home of Alliance.

Burnington's Inc. is a "one-step shop" wholesale business for spare parts for railroad locomotives and mining equipment -- 95 percent of which is exported. The heavily computerized company even makes its own boxes and does its own export documentation. Burnett has three full-time and two part-time employees.

"Rural America is the perfect place to take an East Coast-type business," said Burnett, adding that small-town banks and people are friendly, overhead costs are low and the rural work ethic is good.

One of the biggest problems, Burnett said, is the conception that business can succeed from rural America.

"It's not until you have three failures that you have one success," Burnett said. "You've just got to keep trying."

Mid-Rivers Enhanced 911 Services. Serving six counties (Franklin, Kearney, Webster, Adams, Clay and Nuckolls) for just over one year, Mid-Rivers fields requests for medical, fire emergency, and law enforcement assistance. Mid-Rivers provides the proper agencies with the identification of the call, location, and the telephone number for dispatching.

Doug Hall and Steve Skup, Mid-Rivers 911, Campbell

Law Enforcement Record-sharing/Communication. City and county law enforcement offices collaborate using telecommunication technology. Record keeping and 911 services have been organized to maintain residents' security in a more cost-effective system.

Neil Miller, Buffalo County Sheriff, Kearney

Kearney and Buffalo County law enforcement are anticipating a move into one building that will eliminate duplication and make law enforcement more cost efficient, according to Buffalo County Sheriff Neil Miller.

Currently, both the Kearney Police Department and the Buffalo County Sheriff's Department are cramped for space. The move this year into one building will eliminate one computer system and one 911 emergency system, and reduce seven support staff.

Both law enforcement and citizenry regard the move as advantageous.
"Citizen support has been very good -- they see it as a good way to contain costs," Miller said. "People don't mind paying taxes for law enforcement -- what they don't like is to pay twice for the same service."

In addition to the 911 system, the joint move will mean savings in areas including administrative and secretarial staff, records, computer services, victim-witness unit, training, and physical exercise area.

A written contract and memorandum of understanding also will be in place with the new arrangement.

**Tele-medicine.** An interactive compressed video system between the University of Kansas Medical Center and Western Kansas Area Health Education Center links medical center specialists to western Kansas's patient work-ups for diagnosis and consultation.

*Dr. Robert Cox and Calvina Thomas, RN, Area Health Education, Hays, Kansas*

**Health Management/Patient Record System.** Compatible software links the Cambridge Memorial Hospital to five area clinics for billing purposes. Plans include a system that will transcribe and transmit notes to patient records that can be accessed for emergencies and to facilitate normal clinic diagnostic procedures.

*Jim Naeve, Chief Executive Office, Cambridge Memorial Hospital*

Some rural areas face scarce or tottering health care. Not so a cluster of southwest Nebraska communities, headquartered in agriculturally-based Cambridge, population 1,100. The Cambridge Memorial Hospital and Health Center, with a work force of 205, is the largest employer in a four-county area. Jim Naeve, chief executive officer of the Cambridge Memorial Hospital and Health Center, said it has an $8 million budget; oversees medical care for four other communities; and maintains 14,000 active medical records. Its medical staff includes three physicians and four physician assistants. Additionally, the hospital contracts for physical therapy at nearby McCook, eight times larger than Cambridge.

A local hospital board "pays attention" to the community's desires and needs. "We have a good health care system and we approach it that way," Naeve said. "Whatever our community needs, we try to provide."

Additionally, the professional health care staff appears to be satisfied with their locale, as most have their roots in small towns. Naeve, for example, is from Ord.

Community cooperation extends beyond the health care system. For example, scholarships in various fields are provided for college graduates who will return to work in the area.

The Cambridge community is undoubtedly envied for its successes. The formula is fairly simple: teamwork.

"You have to do what's collaborative, not competitive," Naeve said. That also means forgiving past histories. "We're not sitting here trying to survive -- we're just trying to meet the needs of everyone better."
Team Building Sessions

Participants, organized by geographic regions, get an opportunity to recognize special interests and expertise and to explore opportunities for regional collaboration.

SUGGESTED DISCUSSION QUESTIONS FOR GROUPS--

1. What are the major needs, issues and problems of the area?
2. Which of the needs, issues, and problems can we do something about?
3. What actions can we take to respond to these needs?
4. Who is going to take responsibility for these actions?
5. Who else in the area needs to be involved?
6. When can we get together again?

SOMEONE NEEDS TO TAKE NOTES AND ATTENDANCE!
Hands-on Technology Displays

Displays emphasize applied technology suitable for rural communities. The displays included the following:

1. Nebraska Telephone Association -- Business and residential phone equipment including cellular equipment and video display from the Broken Bow distance learning project.

2. Nebraska Video Conferencing Network -- An operating video-conferencing network that may be expanded to new sites.

3. Nebraska Online -- A computer database providing a variety of electronic information and communication services.

4. SYNAPSE featuring computer technology used to access medical information.

5. MIDNET -- An online computer with access to a nationwide network of database information.

6. CorpNet/NEB*SAT/AGSAT -- delivering information and education via satellite to homes, businesses and extension offices.

7. Nebraska Economic Information Program (NEIP) -- A database management system maintained by the Bureau of Business Research containing business, economic and demographic information.

8. Imaging Specialists, Inc. -- Computer display of transmitted X-ray images via voice-grade telephone lines.

Building Partnerships for Community Development Conference
April 5 & 6, 1993
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Plugging Into The Global Community

Inside

A global challenge
A global checklist
A global report card
A global plan for an electronic highway
The Global Challengers
Aren't Waiting For Us
To Figure Out Our Plan

Here's a hard fact: You and all other Nebraskans have been given the task of building our fourth economy in less than 150 years. Nebraska's fourth economy is information based and market driven. It is simultaneously competing with every other county, state, region and nation in the world. The global economy is not a myth. Your community must compete and that means working smarter, developing electronic highways that, like the railroads of more than a century ago, connect us with the world. You and your community, your region, are part of the competitive effort.

Another fact: The success of each of Nebraska's 535 communities will depend on what they do to ensure their own future.

Your Community's
Development Success Isn't Based On Size

In the 1990s and beyond, the goal of Nebraska's development efforts are people, businesses, and communities succeeding in the global economy. The future of your community rests with your citizens and their capacity to rebuild your community in ways that ensure success in Nebraska's Fourth Economy. Two decades of experience make it clear that neither community size nor location are the key factors contributing to community success. What matters is how communities respond to the challenge, given their own situations and the new realities of changing times.

How Do You Know If You're 'Global,' Or Merely On Your Way?

A "Global Community" in the 21st Century is a successful community. But, how do you measure success? But before you can measure success, your community must choose to be successful. Success is a choice. You can choose not to develop your next generation of leaders. You can choose not to support your present businesses. You can choose to live off the labors of your ancestors. These are choices some communities make. Those communities are not successful. They are not Global Communities. Through inaction, they have allowed their global competitors to decide their fate.

Choosing to succeed in the global economy, however, requires a different way of behaving toward the world. You'll have to work smarter and harder. You'll have to work cooperatively. If you choose to follow the economic development path, then there are many proven benchmarks that will help you measure your "success."

Global Communities are "smart" and aggressively take responsibility for their economic future. They focus vision, human energy and resources on the "right kinds" of investments that will contribute to community success. Does your community measure up to the global standard? The following outline might help you decide.
People
People build families, enterprises and communities. Global Communities focus on people first by investing in their own citizens’ capacity to succeed in Nebraska’s Fourth Economy and the broader global economy. Global Communities:
- seek broad community involvement in development efforts.
- welcome and actively seek the involvement of women, youth, and senior citizens in civic and development organizations.
- regularly renew themselves by involving new leaders and creating opportunities for existing leaders to recharge themselves.
- invest in their citizens by supporting the development of leadership skills and “capacity”—the depth of a community’s talent, knowledge, and enthusiasm.

Vision
Economic development requires a realistic vision. It may be as simple as fixing roads, or as complex as seeking grants for better housing. Whatever the vision, communities must initiate an aggressive and sustained action toward achieving it. Global Communities:
- dream, and then work hard to realize the dream.
- are in touch with the world around them; are open to new ideas but sound in their decision-making. These communities are prepared to work 10, 20, or 30 years to realize a long-term development goal.
- have a vision that is broadly shared in the community. This vision is used by the community to ensure progress in rebuilding the community for Nebraska’s Fourth Economy and the broader global economy.
- know that the best ideas and soundest solutions to development are often to be found in their own community, or the community down the road. Global Communities partner with the “best” in their region to support development efforts. They actively use outside resources in support of efforts, but do not depend upon outside experts or resources for their success. Global Communities participate in programs like Community Builders Academy.
- understand that a vision without a concrete plan remains simply a dream. Global Communities realize they need a living, comprehensive, strategic plan that is used to guide the community’s vision into successful action.
- know that vision and plans without action create dusty reports. Global Communities take charge of their future. They understand that their future is not tied to any one industry, the state or even federal government.

"Smart" Development Continued on page 6
How You Can Build Your Community's Electronic Highway

In A Nutshell

1. Assemble an Action Team. The more diverse, the better off you'll be in one year.

2. Develop a comprehensive vision for the entire community for 1, 2 and 3 years.

3. Study the market for your services and what you can charge users.

4. Assess what technology and expertise already exists. Don't reinvent the microcomputer.

5. Find room for your technology/development center. A school? A library? An unused building on Main Street?

6. Raise funds or solicit support from within the community. Car washes? Computer lessons?

7. After one year, assess how well you met your objectives and revise your 1-, 2- and 3-year plan.

Form An Action Team

Make a list of participants such as K-12 students, administrators and teachers; health care providers and their staff; local government officials and staff; business persons big and small; community college administrators, instructors and students; local manufacturers and workers; economic developers; librarians; farmers; women in all walks of life; the elderly. You know your community. Make your committee is big as need be to give everyone a voice.

Hammer Out Your Vision

With your team in place, green light ideas about where your community should be in one, two or three years when it comes to providing telecommunication services to all citizens. You'll be amazed at the diversity of ideas and needs. Your vision might include providing teleconferencing, government services, job location, marketing, electronic mail, electronic shopping, foreign business leads, legal information and advice. Get the idea? Or should that be ideas?

Study Your Market Potential

Financing your technology/community center is a consideration. Try to find financing other than tax dollars. The goal is to be independent of federal, state and local income swings. Work up a business plan to parallel your vision plan. Ask: "Who might buy some of our services and how much will they pay?" Test your assumptions on the market in your community, in the region. You'll be surprised at the welcoming response!
Now that you've seen the future, it's time to start developing your community's technology capacity. It might look like a daunting task, but let’s look at getting started by breaking the whole task into some workable parts. Understand that these "parts" are adjustable to each community's needs and resources. And, they don't all have to be done at once. They just need to be done.

### Uncover Technical Help

A technology center obviously will need technical expertise. One option is to hire students in the know to serve as installers, operators, and trainers. There probably are other tech-enthusiasts in the community. It's your job to ask around and seek them out. Local computer clubs are one source. Businesses and factories are another. Colleges turn out highly-trained people every year. Put out a call for help on Nebraska Online. It's free.

### Find Your Center A Home

In most towns, there are vacant buildings that probably will fill the immediate needs of your team. Some owners would be happy of someone occupied the building for no or low rent just to have some improvements made to the property and have it occupied. Indianola has worked out such a deal for its Community Builders Information and Technology Center in an unused Masonic Lodge building. Libraries and schools are another option.

### Pass The Hat For Ready Cash

One good idea for greater community involvement is a community-wide fund-raising effort. Contributors could be given a certain number of "free" hours on the equipment, or training in a particular piece of software. Don't overlook church suppers, car washes and other "traditional" money raisers. Why not have some fun. How about an annual Techno Day?

### Start The Process Again

At the end of your first year, hold a special committee meeting to assess what went right and what didn't. You'll learn a lot from the session. And you're now more experienced and familiar with your potential as well as that of your markets. Proceed to Step 2 and see if your vision is still strong, or does it need tweaking? Good luck!
Every community, even the largest city, has finite resources at any given point in time. Global Communities must be increasingly “smart in how they invest in community betterment. Global Communities:

- understand that their first responsibility is to provide sound public and private infrastructure -- streets, health care, local services, utilities, schools, parks, libraries, etc..
- ensure a long-term balance between their ability to pay and the community infrastructure that can be maintained. Call it “investing smart.”
- know that their schools are more than educating centers for K-12 students. Global Communities insist on community schools capable of addressing broader community educational needs. In Global Communities, schools are community centers.
- realize information technology and telecommunications are fundamental to succeeding in the world economy from today forward. Global Communities are acting today to understand the opportunities of information technology, and ensuring that their community is “interconnected.” They have developed an information technology business plan. In Nebraska, Global Communities use Nebraska Online.

Effective Economic Development

In the 1880s, Nebraska's communities would have never become realities had it not been for the hard work and innovation of town builders. It's the same today. Global Communities, even very small communities, must have substantial, aggressive, and smart economic development initiatives. A community of 1,000 residents is a $35 to $45 million enterprise. An enterprise of this size requires daily investments to ensure its economic vitality. Global Communities:

- understand the importance of very small businesses in their economy. These communities realize that they must act to support new business startups and growth in existing businesses.
- have small business development programs that include a Community Builders Information and Technology Center (CBIT), an active chapter of the Nebraska Home-Based Business Association, and a micro-lending program.
- know that the key to successful enterprises is a productive work force. These communities undertake any and all measures to ensure that all workers are skilled and trained to be globally competitive, not just main street competitive.
- realize that economic and community success will largely depend on technology—knowledge, skills and tools. Global Communities act to help their citizens and enterprises access and use new technology in ensuring personal and community economic success.
- understand that the marketplace has grown tremendously since World War II. Consumers of our products, as well as our competitors, may be halfway
around the world. Global Communities act to assist enterprises in understanding the opportunities and challenges of the growing world marketplace.

- appreciate the importance of youth and retirees to their economic future. Global Communities work hard to create local economic futures for their youth and seek to keep senior citizens as active and contributing members of the community.

- understand that agriculture is central to the economic future of Nebraska communities. Global Communities reach out to the agricultural community and seek real partnerships in strengthening local agriculture.

- pursue realistic industrial recruitment. These communities understand the possibilities and position themselves with sound recruitment strategies that can result in success.

- are open to other forms of economic development including the potential of tourism development.

- understand that in today's economic environment where entire countries in Western Europe are cooperating to build successful economies, multi-community collaboration is not just a good idea, but a necessity. Global Communities in the 1990s are creating real partnerships with towns down the road or in an entire region in order to achieve development goals unattainable by individual communities.

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Global Report Card

How does your town stack up? In the following 21 statements, give yourself one point for every "Yes" and a zero for every "No." Here's the curve:

21-18 = A; 17-14 = B; 13-10 = C; 9-6 = D; 5-0 = (Well, you know)

Our town has:

- Broad community involvement in development efforts
- Young people, old people, poor people involved in plans
- An active plan to find new leaders in the community
- An active program for leadership training
- A community-generated vision of what's to be done
- Solid community backing for long-range projects
- Broad community consensus on our town's vision
- Visited other towns to gain new development ideas
- A detailed action plan to make our vision a reality
- People working right now on making our vision a reality
- Balanced infrastructure costs with our ability to pay
- Involved schools and/or colleges in our development plan
- A means of communicating electronically with the world
- A plan to support the development of very small businesses
- A business development and support program
- A program to train workers for technology-related jobs
- A plan for increasing the community's access to technology
- A plan for helping local companies expand global trading
- Understands the importance of agriculture to the state
- Has a realistic industrial recruitment program
- Cooperates on development projects with nearby towns

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Just The FAX

Place your rating of the following conference events, speakers and services.

4 = Very Good (couldn't improve on it)
3 = Good (just about right, but . . .)
2 = Not So Hot (some things ok, but mostly not)
1 = Awful (nothing went right and the food was terrible too)
0 = Gosh, I don't know (I didn't attend; I fell asleep; That was on the program?)

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(By the way, why don't you include your community and its "global report card score." If we get enough of them, maybe we can get an idea of what's going on out there.)

For further information or assistance contact:

Chris Hoy
(402) 471-3805

This publication of the Nebraska Development Network has been printed on recycled paper.
Frequently Used Terms

CELLULAR TELEPHONE SERVICE - Mobile telephone service using a series of transmitters in local areas or cells. The transmission changes frequency as the driver moves between cells. The system allows frequencies to be re-read, thus providing much greater capacity than older mobile systems. Cellular telephone calls are connected in the public switched network.

CENTREX - A service that uses the telephone company’s switch to provide internal switching and other features for businesses and organizations; may be used instead of a customer premises PBX.

E911 - Enhanced 911 emergency service; the caller’s telephone number, location and other important information are stored in a computer and automatically displayed for the dispatcher when a 911 call is received.

ELECTRONIC MAIL ("E-mail") - The use of telecommunications to send textual messages. Messages are stored in user’s "mailbox" for retrieval on demand.

FACSIMILE (FAX) - Equipment that transmits and receives documents over telephone lines.

FCC - Federal Communications Commission.

FIBER OPTIONS - Strands of hair-thin glass through which light transmits telecommunication signals.

GAO - General Accounting Office.

GTE - General Telephone and Electronics.

KINI - Kansas Independent Network, Inc.

MODEM - Modulator/demodulator; a device for converting digital data into analog signals for transmission over ordinary telephone lines and converting received analog signals to digital data for computer processing.

TELEX - A public switched network connecting teletypewriters or other devices transmitting at 50 bits per second.

VOICE MAIL - A voice messaging system in which spoken messages are recorded for later playback or transfer to others.

Useful but not Everyday Terms

ACCESS CHARGES - Telephone subscribers pay subscriber access charges, typically $43.50 per month for residential subscribers, to local telephone carriers to access the interstate public switched long distance network. Long distance carriers also pay access charges to local telephone carriers for the use of local lines to complete local distance calls.

BOC - Bell Operating Company; the BOCs are grouped under several regional holding companies (RHCs or RBOCs).
BYPASS - Telecommunications transmissions that avoid part or all of the public switched network.

DIGITAL - A discrete or discontinuous signal which transmits audio, data and video as bits (binary digits) of information.

EAS - Extended Area Service; the ability to call an extended area for a flat monthly rate for each call.

EDI - Electronic Data Interchange; the use of computers and telecommunications technologies to process common transactions, such as invoices, shipping notices, and bills, that traditionally have entailed the transfer and processing of paper documents.

EDS - Electronic Data Systems.

EQUAL ACCESS - The ability to make a long distance call using a preselected long distance carrier by dialing 1 plus 10 digits (1 + dialing).

FRED - Funds for Rural Education and Development, established by OPASTCO.

GATSS - Global Agriculture Technology Sales and Services Center.

LAN - Local Area Network; network linking computers at a single location.

LIFELINE - Fund to help local income telephone subscribers maintain access to basic local telephone services.

LINK UP AMERICA - Program to provide federal assistance for half the cost of installation and deposit charges for residential telephone service, up to $30.

MAJ - Modified Final Judgment; the Consent Decree that broke up AT&T.

NRTA - National Rural Telecom Association.


NTCA - National Telephone Cooperative Association.

NRTC - National Rural Telecommunications Cooperative.

NTIA - National Telecommunications and Information Administration, U.S. Department of Commerce.

MICROWAVE - Radio communication using particularly high frequencies (and thereby particularly short wave lengths), for example, 4 gigahertz (4 billion cycles per second).

TELEMEDICINE - Use of telecommunications for medical diagnosis, patient care, and health education.

UNIVERSAL SERVICE - Refers to the goal of providing basic telephone service to virtually every household.

WAN - Wide Area Network; a computer network covering a large geographical area.

For Technologists

ANALOG - A signal that varies in a continuous manner (as contrasted with a digital signal).

AUDIOTEX - An interactive audio information service available for a fee to users of touch-tone telephones.

BANDWIDTH - The capacity of a communications channel, expressed in hertz (cycles per second).
BETRS - Basic Exchange Telephone Radio Service; a radio-based telephone system for serving isolated areas.

COMPRESSED VIDEO - Digitized video that requires less bandwidth than standard motion video through use of codes.

GATEWAY - Connection between networks using different protocols. Also the connection between a telecommunications carriers and an information provider.

ISDN - Integrated Service Digital Network; an evolving set of international standards for a digital public telecommunications network.

LATA - Local Access and Transport Area; the geographical area within which Bell Operating Companies may carry traffic without violating the terms of the MAJ barring them from long distance services.

NARROWBAND CHANNEL - A communication channel, such as copper wire or part of a coaxial cable channel, that transmits voice, facsimile or data at rates of kilobits per second, but not high speed data or video.

SS7 - Signaling System 7; a control system for the public telephone network that allows telephone company computers to communicate directly with each other for routing calls, using signaling circuits used for the telephone calls themselves.

T-CARRIERS - A family of high speed, digital transmission systems. A T1 carrier has a capacity of 1.544 megabits per second.

VAN - Value Added Network; a data communications system in which special features such as protocol conversions or database access are added to the underlying transmission capabilities.

Sixth Annual
"Building Partnerships for Community Development"
Conference

Rural Development in the Information Age

... A Workshop for Community Leaders, Development Specialists, and Resource Professionals

Workshop Sponsors

Center for Public Affairs Research, UNO
Cooperative Extension, University of Nebraska & Kansas State University
International Center for Telecommunications Management, UNO
K N Energy, Inc.
Nebraska Department of Economic Development
Nebraska Development Academy
Nebraska Economic Developers Association
Nebraska Public Power District
Nebraska Telephone Association
University of Nebraska at Kearney
Building Partnerships for Community Development
"Rural Development in the Information Age"

Monday, April 5

9:30 a.m.  Registration .............................................................. Poolside

9:45 a.m.  Board Bus for Tour of Cabela's Telemarketing Operations (must have reservation) Lobby

10:15 a.m. Board Bus for Tour of ITI Marketing Services (must have reservation) Lobby

11:00 a.m. Hands-on Technology Displays ................................................ Poolside

Displays emphasize applied technology suitable for rural communities and include:
1) Business and residential phone equipment including cellular equipment and video display from the Broken Bow distance learning project--Nebraska Telephone Association.
2) Nebraska Video Conferencing Network--An operating video-conferencing network that may be expanded to new sites.
3) Nebraska Online--A computer database providing a variety of electronic information and communication services.
4) SYNAPSE featuring computer technology used to access medical information.
5) MIDNET--An online computer with access to a nationwide network of database information.
6) CorpNet/NEBSAT/AGSAT--delivering information and education via satellite to homes, businesses and extension offices.
7) Nebraska Economic Information Program (NEIP)--A database management system maintained by the Bureau of Business Research containing business, economic, and demographic information.
8) Imaging Specialists, Inc.--Computer display of transmitted X-ray images via voice-grade telephone lines.
9) Big Sky Telegraph--Demonstration of local global teleports.

12:00 noon  Luncheon .............................................................. Poolside

"Information Age Technologies Across the Nation"
Dr. Sharon Strover, University of Texas at Austin

1:30 p.m.  Concurrent Technology Sessions

Concurrent sessions will offer participants two opportunities to learn about the technology and training required, appraise costs and benefits, recognize supporting networks, and learn where special services may be obtained.

1. Education Initiatives ....................................................... Room AB
   a) K-12 interactive technologies useful for training and retraining programs for business and the learning community. Services are now provided at Sutherland and other rural Nebraska communities.
      Dr. Roger Wess, Professor, Chadron State College
   b) Interactive T.V. is featured in this example of a business/education partnership formed to create an interactive educational video network in southwest Kansas. The network now encompasses 12 sites including Fort Hays State University. The success of the network has stimulated the creation of a parallel medical network as well as the use of interactive video by business.
      Richard Veach, General Manager, Pioneer Telephone, Ulysses, Kansas

2. Health Initiatives ......................................................... Room C
   a) The Rural Health Education Network (RHEN)--A telecommunications network used to train health professionals using interactive video.
      Dr. Reba Benschoter, Dean, and Dr. Rosalee C. Yeaworth, Dean and Professor, University of Nebraska Medical Center, College of Nursing
   b) SYNAPSE health resources online provides communications to access library resources at UNMC/UNL/UNK and the National Library of Medicine as well as to health databases for continuing education and for office management.
      Robin K. Meter, SYNAPSE Supervisor, University of Nebraska Medical Center
3. **Business Initiatives**

a) "How a small telecommunication business started in the middle of Nebraska"
   Dave Waldron, EMRG, Kearney

b) "How small telemarketing companies assist Cabela’s"
   Tim Miller, Cabela's, Kearney

c) Data Transmission Network Corporation (DTN) delivers time-sensitive market information and news. This Omaha firm provides commodity and stock market quotes and agricultural business news to more than 65,000 rural and urban users by a small satellite dish or FM radio sideband.
   Charles K. Wood, Vice President, DTN

4. **Government Initiatives**

a) The Applied Institute of Management (AIM) is a non-profit corporation organized to provide information technology leadership to the Greater Nebraska community by focusing, coordinating, and synergizing the resources of educational, governmental, and business partners.
   Robert Sweeney, Executive Director, AIM

b) Nebraska Online was established as a state-wide information and communication tool for economic development. This component of the Nebraska Development Network includes the following services: a development services directory, calendar of events, electronic news service, bulletin board referral, databases, and electronic mail.
   Mary Jo Ryan, Public Information Coordinator, Nebr. Library Commission

c) MIDNET, the Midwest Research and Education Network, provides access to the National Science Foundation Network and the Internet community. Advances in education and research can be accessed through low-cost, reliable, high-speed connections with Midwest educational institutions, non-profit organizations, and business.
   Dr. Doug Gale, President, MIDNET

**Tuesday, April 6**

8:00 a.m. Registration & Hands-On Technology Displays .............................................. Poolside

8:45 a.m. "How Information Technologies Transform Rural Communities" ................ Rooms DEF
   Dr. Don Dillman, Washington State University

9:45 a.m. Break .................................................... Poolside

10:00 a.m. Nebraskan’s Information Age Skills and Networking Experiences ........ Rooms DEF
   "An Information Age Profile of Rural/Small Town Nebraska Households"
   Dr. John Allen, Rural Sociologist, Department of Agricultural Economics, UNL
   "Challenges Confronted in Establishing a Distance Learning Network"
   Don Vanderheiden, Superintendent of Schools, Broken Bow

10:45 p.m. **Telecommunication Issues Panel** (Regulation, pricing authorities, policies and plans) .... Rooms DEF
   Moderator: Norm Osland, Nebraska Telephone Association
   Panel: Gene Hand, Nebraska Public Service Commission
          William Miller, Communications Division, State of Nebraska
          Floyd Olson, Great Plains Communications
          Al Bergman, U S WEST
12:00 noon Luncheon .............................................. Poolside

Lieutenant Governor Maxine Moul

1:15 p.m. Community Showcases ........................................ Rooms ABC

Nine innovative communication projects will be shared at a roundtable format to provide participants with ideas to adapt to local development needs and goals.

1) Twelve-school Water Study--Using computers and telephone network system linking schools and agencies, students studied and debated water issues. Paul Ekberg, an Orleans teacher, received a Readers Digest Award for this program.
   Jeff Smith, Teacher, Orleans High School

2) Sandhills Technology/Telecommunications Project--Five schools used fiber optic cable and two-way satellite communications to share classes this past semester, utilizing computer and fax connections between five classrooms.
   Don Vanderheiden, Superintendent of Schools, Broken Bow

3) Hamilton Telephone Company--In addition to local telephone services, this local firm branched out into cable television, telemarketing, and services for those with hearing and speech disabilities in Nebraska and Idaho and toll operator services for some South Dakota companies.
   Gary Warren, Vice President, Hamilton Telephone Company, Aurora

4) Eilers Machine and Welding, Inc.--This firm builds upon customers' plans to build fabricated parts. Computer Numerical Control (CNC) and Computer Aided Design (CAD) systems are used in design and manufacturing.
   Brian Eilers, President, Eilers Machine and Welding, Inc., Lexington

5) Burningtons Inc.--Using computers, telephones, and fax machines, this firm (which exports USA-made parts for railroad locomotives and mining equipment) does business with clients worldwide. The lower overhead of a rural community allows the firm to be competitive in their bids.
   David Burnett, Burningtons Incorporated, Alliance

6) Mid-Rivers Enhanced 911 Services--Serving six counties (Franklin, Kearney, Webster, Adams, Clay and Nuckolls) for just over a year, Mid-Rivers fields requests for medical, fire emergency, and law enforcement assistance. Mid-Rivers provides the proper agencies with the identification of the call, location, and the telephone number for dispatching.
   Doug Hall & Steve Skupa, Mid-Rivers 911, Campbell

7) Law Enforcement Record-sharing/Communication--City and county law enforcement offices collaborate using telecommunication technology. Recordkeeping and 911 services have been organized to maintain residents' security in a more cost-effective system.
   Neil Miller, Buffalo County Sheriff, Kearney

8) Tele-medicine--An interactive compressed video system between the University of Kansas Medical Center and Western Kansas Area Health Education Center links medical center specialists to western Kansas' patient work-ups for diagnosis and consultation.
   Dr. Robert Cox or Calvina Thomas, RN, Area Health Education, Hays, KS

9) Health Management/Patient Record System--Compatible software links the Cambridge hospital to five area clinics for billing purposes. Plans include a system that will transcribe and transmit notes to patient records that can be accessed for emergencies and to facilitate normal clinic diagnostic procedures.
   Jim Naeve, Chief Executive Officer, Cambridge Memorial Hospital

2:30 p.m. Team Building Session ........................................ Rooms ABC

Participants, organized by geographic regions, get an opportunity to recognize special interests and expertise and to explore opportunities for regional collaboration.

3:15 p.m. Rural Development in the Information Age - A Conference Summary ........................................ Rooms ABC

Dr. Don Dillman, Washington State University

3:40 p.m. Wrap-up Mixer ........................................ Poolside
WORKSHOP PLANNING COMMITTEE

John Allen, PhD, Center for Rural Revitalization, UNL
Tallie Bishop, International Center for Telecommunications Management, UNO
Bob Blair, Center for Public Affairs Research, UNO
Greg Dunn, Industrial Technology Department, UNK
Bill Greene, Nebraska Public Power District
Rod Hansen, K N Energy, Inc.
Gordon Ipson, Nebraska Development Academy
Ken Lemke, Nebraska Department of Economic Development
Martha Liebhart, Kansas State University Extension
JoAnn S. McManus, Nebraska Department of Economic Development
William Miller, Division of Communication, State of Nebraska
Duane A. Olsen, PhD, Extension Service, UNL
Michael Shenka, International Center for Telecommunications Management, UNO
Kimberly S. Snyder, Nebraska Telephone Association
Gary Warren, Hamilton Telephone Company

OTHER SPECIAL THANKS

Ardith Behlen, Nebraska Public Power District
Reba Benschoter, PhD, University of Nebraska Medical Center
Al Bergman, U S WEST
Dave Burnett, Burningtons, Inc.
Sam Corckes, PhD, Center for Rural Revitalization
Robert Cox, MD, Area Health Education
David DePruiiter, Nebraska Bureau of Business Research, College of Business, UNL
Don Dillman, PhD, Washington State University
Brian Eilers, Eilers Machine and Welding, Inc.
Doug Gale, PhD, MIDNET
Dennis Hall, Nebraska Public Power District
Doug Hall, Mid-Rivers 911
Kenneth Hallum, Imaging Specialists, Inc.
Gene Hund, Nebraska Public Service Commission
Connis Justis, Nebraska Department of Economic Development
Kelly Wells Kahman, Nebraska Department of Economic Development
Robin K. Meter, University of Nebraska Medical Center
Neil Miller, Buffalo County Sheriff’s Department
Tim Miller, Cabela’s
Jim Naeve, Cambridge Memorial Hospital
Sufi M. Nazem, PhD, International Center for Telecommunications Management, UNO
Frank Odasz, Western Montana College
Floyd Olson, Great Plains Communications
Norm Oslund, Nebraska Telephone Association
Donis Petersan, PhD, Nebraska Public Power District
Roberta Pinkerton, Nebraska Department of Economic Development
Mary Jo Ryan, Nebraska Library Commission
Don Sheets, ITI Marketing Services
Steve Skupa, Mid-Rivers 911
Jeff Smith, Orleans High School
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