

Building Information Age Communities

Preparing Nebraska's Communities for the Information Age

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Information technology is transforming the economy and society. In order to participate in the emergency digital economy, communities need to begin thinking digitally--focusing on how information technology can be used to enhance economic and community development.

Is your community an Information Age community?

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|
| 1. Are high bandwidth services available to all businesses, organizations, and residents? | yes | no |
| 2. Does your community have affordable access to telecommunications services? Affordable access and high speed access are often two different things. Both should be available in a community. | yes | no |
| 3. Are economic development initiatives tied to the needs of Information Age businesses? These efforts should include the development and support of local entrepreneurs and the development of a skilled workforce. | yes | no |
| 4. Are online community services and information--including government, schools, and libraries--available? In many communities, information technology may be an effective and efficient way to improve access to health care. | yes | no |
| 5. Does your community have public access sites and free or affordable training on basic computer and Internet skills? | yes | no |
| 6. Are citizens and civic groups connected? Information technology can be used to inform and involve citizens, building social capital. Communities in which institutions and citizens work well together are more successful in their development efforts. | yes | no |
| 7. Does your community pay careful attention to quality of life issues? | yes | no |

Quiz questions have been drawn primarily from "Building eCommunities: Getting Everyone Connected" by Andrew Michael Cohill, (http://www.bev.net/project/digital_library/)

Scoring. Give your community one point for each question answered with a "yes.":

- 6-7 Information Age Community
- 3-5 Emerging Information Age Community
- 0-2 Industrial Age Community

What is an Information Age Community?

Information Age communities utilize information technologies to improve economic opportunities, expand educational offerings, provide better access to health care, more efficiently deliver government services, and provide community information.

Information Age communities realize that information technology breaks down barriers of distance, opening new markets and allowing employees and business to locate virtually anywhere. Information Age communities promote the use of information technology in all sectors of the community. Because the development efforts of one sector or entity often spillover into other sectors, the outcome is synergistic.

Characteristics of an Information Age Community include:¹

- High bandwidth services available to all businesses, organizations, and residents.
- Affordable access to telecommunications services. Affordable access and high speed access are often two different things. Both should be available in a community.
- Economic development initiatives tied to the needs of Information Age businesses. These efforts should include the development and support of local entrepreneurs and the development of a skilled workforce.
- Online community information and services, including government, schools, and libraries. In many communities, information technology may be an effective and efficient way to improve access to health care.
- Connected citizens and civic groups. Information technology can be used to inform and involve citizens, building social capital. Communities in which institutions and citizens work well together are more successful in their development efforts.
- Careful attention to quality of life issues.
- Public access sites and free or affordable training on basic computer and Internet skills.

8 Reasons Communities Should Think Digitally

1. Information technology is a driving force in the U.S. economy, growing even faster than predicted.

The Internet economy generated 523.9 billion in 1999 up from \$301.4 billion in 1998 was responsible for 2.476 million jobs in 1999.² By 2006, almost half of the U. S. workforce will be employed by industries that are either major producers or intensive users of information technologies.³

2. The fastest growing, high-paid occupations are in information technology.

Fastest Growing Occupations (1996-2006)⁴

Occupation	Projected Growth Rate
Computer Scientists	118%
Computer Engineers	109%
Systems Analysts	103%
Personal and home care aides	85%
All Occupations	14%

3. Information technology is changing the way businesses conduct business with other businesses.

Business to business e-commerce revenues in the U.S. are expected to increase from \$336 billion in 2000 to \$6.3 trillion by 2005. ⁵ 40% of mid-sized firms in the U.S. are using the Internet to purchase supplies and equipment. 37% of those business which are not currently purchasing online plan to begin purchasing online within the next year.⁶

4. Information technology is expanding retail opportunities.

Business to consumer e-commerce is expected to reach \$56 billion in 2000, an increase of 103 percent from last year. In 2010, business to consumer e-commerce is expected to reach \$1.1 trillion. ⁷

5. Many small businesses are not well-positioned to realize the benefits of information technology.

In a recent survey of Nebraska rural businesses, over 70 percent of the respondents indicated that understanding the business opportunities available through the Internet was their greatest challenge in expanding or restructuring their business.⁸

6. Through the use of information technology, residents can receive better access to medical consultations and health services.

There is a lack of specialist services--particularly mental health services-- in many areas of the state. Through telemedicine, residents can receive care in their own communities. Over 7,000 patient encounters have been performed by the Mid-Nebraska Telemedicine Network, Nebraska's most active telehealth network, since it began in December 1995. ⁹

7. Information technology is expanding educational opportunities.

Information technology is expanding educational opportunities in many communities. High school students can take Calculus, Spanish, physics, and a number of other courses via interactive video or online courses. Many professionals are also using information technology to meet their continuing education needs.

8. Government services and information can be provided online, decreasing costs and increasing citizen involvement.

By utilizing e-mail, online mailing lists, and Web sites, local governments can increase citizen involvement. and reduce costs. South Sioux City is the first city in Nebraska to have a paperless city council.

Blacksburg, Virginia pioneered the concept of an Information Age community. Back in the late 1980s, Virginia Tech proposed using telecommunications to connect residents by building a community network. Today, Blacksburg has the highest per capita use of the Internet in the world. Over 60 percent of Blacksburg's residents have high speed broadband access in their businesses and apartments. Over 24 technology companies have been started in Blacksburg in the last five years and the Virginia Tech Corporate Research Center is one of the fastest growing business parks in the nation.¹⁰

In Nebraska, Aurora is a good example of an Information Age community and the synergistic outcomes of Information Age development. Aurora's initial technology fair in 1994 increased community awareness of the importance of information technology and helped build community support for the deployment of information technology in the schools. The videoconferencing system in the hospital is used primarily for consultations and training for medical center and hospital staff, but is also available for use by local businesses. Hamilton Telecommunications has a telemarketing center and provides TDD services for five states. As demand for advanced services has grown, Hamilton Telecommunications has deployed DSL and ISDN in the community. Recently a software company moved to Aurora, attracted by the availability of office space, advanced telecommunications services, and the quality of life. A business incubator is set to open in 2001. In addition to attracting and assisting new business start-ups, the incubator program will provide a local e-commerce services and educational programming for all businesses in the community.¹¹

5 Lessons We Can Learn from Information Age Communities

1. A few deeply committed, well-connected people can make a difference.

The most successful IT efforts in communities--both in Nebraska and across the U.S.--have been locally driven. In fact, whether or not a community has a core group of committed, connected individuals is the single most important predictor of its success.

This core group often consists of 6-15 individuals. The core group usually has representation from key sectors and institutions in a community, including local government, economic and community development organizations, business, the library, education, and health care. IT professionals and industry representatives are also good resources.

Information Age development doesn't require community leaders who know all of the answers. It does require community leaders, however, who have the passion and

commitment to find the answers. By building relationships within the community, community leaders can effectively utilize existing local resources. By contacting appropriate resources on the state, regional or national level, the community can also benefit. Examples of statewide resources in Nebraska include the Nebraska Information Technology Commission's Community Technology Fund, the University of Nebraska Extension's Nebraska Electronic Main Street e-commerce training program, and the Department of Economic Development's Community Development Block Grant program. Additionally, the Public Service Commission can provide information and assistance in addressing some of the regulatory issues which impact communities. Quite often, effective local community leaders are also active in professional organizations and participate in policy development at the state or federal level.

2. Information Age development is more than infrastructure and bandwidth.

Although infrastructure issues often act as a catalyst for interest in IT development, the development of teleliteracy skills and IT applications is equally important. The Community Council of the NITC has identified 15 areas for communities to consider:

- Community Leadership and IT Planning
- Economic Development
- E-Commerce
- Agriculture
- Public Access and Universal Service
- Education
- Public Library Resources
- Health Care
- Technology Training and Retention
- Broadband Services and Infrastructure
- Local Government and Community Services
- Law Enforcement and Emergency Services
- Geographic Information Systems (GIS)
- Arts, Culture, History, and Non-profits
- Funding Strategies

Each of these areas is covered in the Building Information Age Communities Community Assessment (<http://www.nitc.state.ne.us/itc/community/building.pdf>). The assessment is designed to help a community identify how information technology is currently being utilized and to suggest additional ways in which information technology may be utilized as a community and economic development tool. A community just starting out may want to identify two or three of these areas on which to focus initially. As the community's efforts mature, it may want to expand its focus.

Of these 15 areas, economic development and e-business are the killer "apps." Although most of the hype about e-commerce has focused on business to consumer e-commerce, business to business e-commerce is many times larger than business to consumer e-commerce. Phil Burgess and Flo Raitano have written a very compelling article available from the Center for the New West detailing what they call "the other digital divide."¹² There are nearly 22 million businesses in the United States. Only 15,000 are large businesses with over 500 employees. The other 21 million are small to mid-size businesses. All of the largest businesses have high speed Internet access. These large businesses are utilizing business to business e-commerce because they enjoy substantial cost savings.

In contrast, most small to mid-size businesses do not have high-speed Internet access. Most small to mid-size businesses however have some sort of a relationship with big businesses either as a supplier or a customer. The big businesses are driving their customers and suppliers to use e-commerce. And the small to mid-size businesses which make up the majority of businesses in rural communities are struggling to keep up. Without access to affordable broadband services, these businesses can't compete in the new economy.

3. Information Age development is complementary to traditional economic and community development efforts.

Increasingly, telecommunications is allowing people to locate where they want to locate. Without housing, schools, health care, recreational opportunities, main street businesses, etc., a community will not benefit from IT development. IT development can also benefit traditional community and economic development areas. For example, Hays, Kansas was trying to recruit a doctor to their community. One of the reasons the doctor gave for deciding to move to Hays was the availability of broadband Internet access in homes via cable modems.¹³

4. There are several options for the delivery of advanced services.

Communities are not limited to one technology or even one provider for the provision of advanced services. Traditional telecommunications providers and new providers are providing advanced telecommunications services in many rural communities. Over the past year, substantial developments have been made in DSL, cable, wireless, and satellite services.

DSL (Digital Subscriber Line) technology utilizes existing copper phone wires to provide high speed services. Many of the small independent telephone companies in Nebraska are beginning to provide DSL.

Cable companies are also providing high-speed service through cable modems. Although most cable Internet services are primarily located in metropolitan areas, a few rural communities are offering cable Internet service. Hays, Kansas is a good example.

Wireless is being used in a number of communities in Nebraska, including Wahoo, Imperial, Sidney, and Fullerton. A number of small telephone companies are using wireless to reach some customers. Other providers are new entrants and provide only wireless services.

Satellite is the most promising technology for remote businesses and households. Both Microsoft and AOL announced earlier this year that they will be rolling out satellite services. (MSN is \$59.95 per month and \$299.95 for equipment. The system does not require a phone line. ¹⁴)

5. Aggregating demand for advanced telecommunications services is an effective strategy for accelerating the deployment of advanced services.

Quite often, we've heard industry representatives say, "If there is sufficient demand for a service, we'll provide it." By aggregating demand for telecommunications services, a community can prove that there is indeed sufficient demand. For example, Jed Wagner asked Alltel and what communities in Nemaha County needed to do to have DSL available. Alltel told him that they would deploy DSL if 50 people in an exchange indicated that they would get DSL. Jed found over 50 people interested in Auburn and now Auburn has DSL. If the local telecommunications serving a community is not responsive, this information could be provided to an alternative provider.

In many communities, government is the largest consumer of telecommunications services. It is important to leverage this demand for the good of the community. Through its NETCOM Initiative (formerly known as TINA), the State of Nebraska is aggregating its demand for telecommunications services and will issue an RFP for a prime contractor in April. A prime contractor is not a sole source provider. A prime contractor would not provide all telecommunications services but would rather subcontract out to local telecommunications providers. Because this will be an industry-owned network--not a state-owned network--businesses and individuals in the community could also access this network. The state would, in effect, be acting as an anchor tenant.

Nebraska is not the first state to do this. Kentucky, Tennessee, Pennsylvania, and more recently North Dakota have undertaken similar initiatives. Kentucky, in particular, has found that aggregating the state's demand and acting as an anchor tenant has stimulated economic development in rural areas of the state. We are hopeful that WIDEN Nebraska will also stimulate economic development in rural areas of the state.

Hastings provides a good example of how aggregation can increase capacity in a community. The state alone has seven T1s going into Hastings. The cost of seven T1s is nearly the same as the cost of a T3. A T3, however, provides four times the capacity of 7 T1s. This excess capacity would be available for use by businesses and other entities within the community.

The Division of Communications is inviting communities to inventory their demand and append this information to the information being collected by the state. The Division of Communications cannot contract on behalf of private entities. However, we believe that making community information available to the industry will strengthen the business case for investing in the telecommunications infrastructure in rural Nebraska. Additional information is available at the Division of Communications Web site (<http://www.doc.state.ne.us>).

Reading List

Wiring the Rural West

(<http://www0.mercurycenter.com/svtech/news/special/ruralwest/>)

This series of articles by David Plotnikoff in the San Jose Mercury News examines IT development in Dillon, Montana; LaGrande, Oregon and Maddock, North Dakota.

Blacksburg Electronic Village Digital Library

(http://www.bev.net/project/digital_library/)

Blacksburg, VA has the highest per capita use of the Internet in the world. This collection of articles and reports is a wonderful resource. If you only have time to read one article, start with "Building eCommunities: Getting Everyone Connected." (PDF documents.)

The Other Digital Divide

(http://www.newwest.org/technology_society/digital_divide/OtherDigitalDivide.pdf)

A compelling article on the digital divide between small businesses and large businesses.

Nebraska Business Use of Information Technology

(<http://www.aimlink.org/studies/2001/report.htm>)

This study provides information on how Nebraska businesses are using information technology and their information technology needs.

NUA Internet Surveys

(<http://www.nua.ie>)

A great resource for information on the latest Internet studies.

Digital Economy 2000

(<http://www.esa.doc.gov/de2000.pdf>)

This report by the U.S. Department of Commerce states that "the digital economy and digital society are no longer 'emerging.' They are here." The report details the tremendous impact of information technology on the economy. (PDFdocument).

NITC Information Technology Clearinghouse--Community Resources

(<http://www.nitc.state.ne.us/itc/communities.htm>)

Check out the resources included in the Clearinghouse.

¹ These characteristics are drawn primarily from "Building eCommunities: Getting Everyone Connected" by Andrew Michael Cohill, (http://www.bev.net/project/digital_library/).

² University of Texas, *Measuring the Internet Economy*, June 6, 2000, (<http://www.internetindicators.com/>).

³ U.S. Department of Commerce, *Digital Economy 2000*, June 2000, (<http://www.esa.doc.gov/de2000.pdf>).

⁴ U.S. Department of Labor, Bureau of Labor Statistics, 1996 Industry-Occupation Employment Matrix., reported by U.S. Department of Commerce, *The Digital Workforce: Building Infotech Skills at the Speed of Innovation*, June 1999, p. 26, (<http://www.ta.doc/reports/itsw/Digital.pdf>).

⁵ Jupiter Communications, "Staggering Growth Predicted for B2B," October 6, 2000, reported by NUA Internet Surveys, (<http://www.nua.ie>).

⁶ American Express, "Mid-sized Companies Turn to E-Procurement, Dec. 6 2000, reported by NUA Internet Surveys, (<http://www.nua.ie>).

⁷ Activmedia, "B2C Worth USD56 Billion in 2000," November 16, 2000, , reported by NUA Internet Surveys, (<http://www.nua.ie>).

⁸ Robert E. Sweeney, Nebraska Business Use of Information Technology, February 2001, (available at <http://www.aimlink.org/studies/2001/report.htm>).

⁹ Keith Mueller, Alan Diener, and Jami Fletcher, *Assessment of Potential Uses and Needs of Telehealth Services in Rural Nebraska*, January 2001 (available at <http://www.unmc.edu/rural/documents/pr01-1.pdf>).

¹⁰ Andrew Michael Cohill, "Building eCommunities: Getting Everyone Connected," (http://www.bev.net/project/digital_library/).

¹¹ Anne Byers, *NITC.news*, "Aurora: Planning for the Future", (<http://www.nitc.state.ne.us/cc/best%20practices/Aurora.htm>).

¹² Phillip M Burgess & Florine P. Raitano, "The 'Other' Digital Divide," September 1999, (available at http://www.newwest.org/technology_society/digital_divide/OtherDigitalDivide.pdf).

¹³ Brian K. Staihr, "The Digital Divide," videotape presentation available from the Cooperative Extension Division, University of Nebraska.

¹⁴ MSN Web site, Dec. 28, 2000, (<http://essentials.msn.com/access/satellite.asp>).