Northwest Ohio Regional Report on Ohio's Readiness for Global Electronic Commerce May 2000

EISC

This is a summary report. For more detailed information please visit www.ecom-ohio.org.

EISC

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Co-Chairs

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NCR

We wish to thank the members of the ECom-Ohio Steering Committee, whose untiring efforts have brought ECom-Ohio to fruition.

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Ready, Set, Go!

Action! must be our watchword as the information revolution powerfully transforms our economy and society. But is Ohio ready to compete in the new information economy? This report answers that question and more. It documents ECom-Ohio's landmark public-private leadership effort to measure Ohio's readiness for global electronic commerce. The project has collected data in 22 key indicators that measure our state's performance against a comprehensive set of national benchmarks (www.cspp.org).

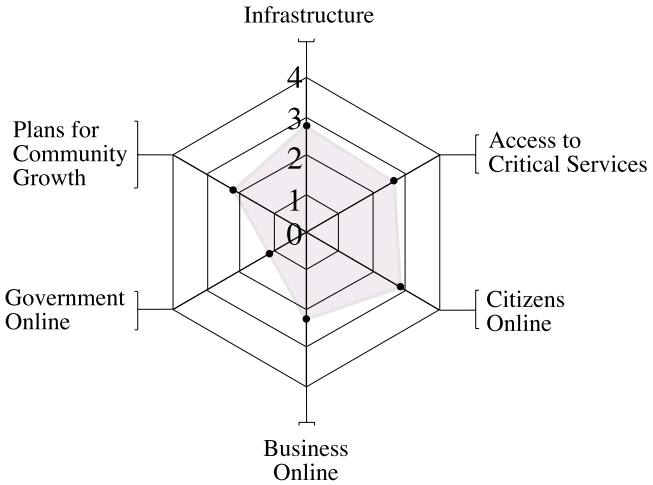
The Internet and growth of e-commerce as a way of doing business has thrust Ohio's industrial base into a time of turbulent change. Network traffic doubles every six months and forecasts show that business-to-business e-commerce will be a major driver of our state's economy in the next decade, generating new entrepreneurial ventures, sources of wealth and jobs. As industry experts recently observed:

> *"Business-to-business trade isn't growing up in high-tech centers like Silicon Valley; it's developing in industrial hubs like Cleveland and Detroit. As B2B trade expands, there will be a flight of talent and venture capital money to support these efforts, leaving the coasts feeling a bit of a frost — while middle America experiences the Internet boom in 2001."*
>
> *- - Forrester Research, February, 2000*

We firmly believe that Ohio—a leader in the first industrial revolution—has the potential to be a leader in the ECom revolution in which we are participating today. Thriving in this time of change will challenge all of Ohio's firms and institutions. The report you hold identifies a course of action and the direction we must take to remain competitive. Turn the page to see how you can get involved within your home, firm, educational institution, or government unit to move our state forward in the new economy.

Roderick G. W. Chu
Chancellor, Ohio Board of Regents

Lars Nyberg
Chairman and CEO, NCR Corporation



Northwest Ohio's Electronic Commerce Readiness

Infrastructure Capabilities

Components of E-Commerce

Northwest Ohio has a limited information infrastructure, which will not be sufficient to support emerging high bandwidth applications. While access in metropolitan Toledo is not a problem, limited service and pricing options will become a barrier as automakers drive more suppliers in the region to web-based procurement and scheduling systems. Internet use by Northwest Ohio citizens is at national averages but local business use of e-commerce tools must be increased to provide the driver to enhance infrastructure, broaden access technology choices, and assure the region's future competitiveness. This is particularly the case in rural areas where usage and access choices are limited.

Components of E-Commerce Defined

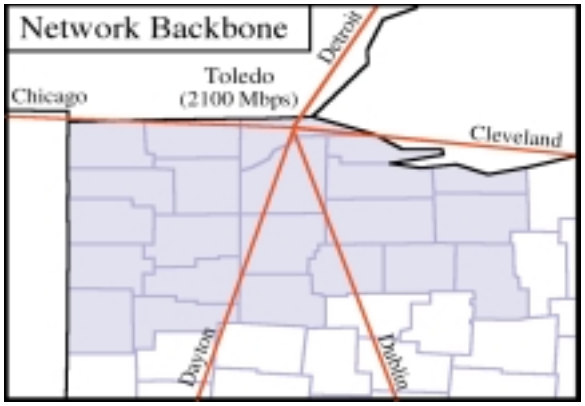
Infrastructure: The communication networks that connect users to the Internet.

Access: The choices available by which users can connect to the public data network at the level they demand or need.

Usage: The extent to which business, government, and household users utilize the access available to them.

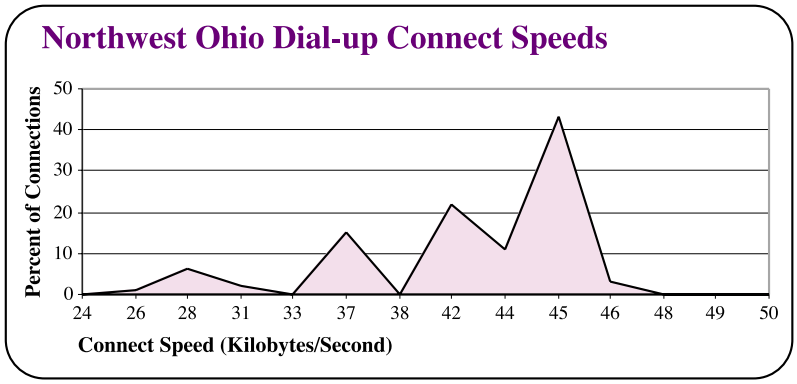
Available Local Backbone

High bandwidth connectivity in Northwest Ohio is provided most broadly through the aggressive efforts of Buckeye Telesystems with some Digital Subscriber Line (DSL) deployment in limited geographic areas. However, the large number of small telecommunications providers results in a lack of advanced services available for most rural and many suburban populations. Connections at 1.5 Mbps (T-1) speeds are available in most urban and suburban areas, with most access available in the metropolitan region. Access capacity is available from three Internet backbone providers, totaling 2100 Mbps to points outside the region. This provides for moderate levels of redundancy. Wireless access to the Internet is not widely available.



Ability to Meet Demand

Connection attempts from the Northwest Ohio region typically do not experience tremendous disruptions; 90% of all connection attempts are successful. However, dialup connections are not robust enough to support high bandwidth applications. Network slowdowns occur during peak hours but rarely deny access. Approximately 60% of Ohioans report interruptions in service at least once a month. Infrastructure is sufficient to support above average levels of data traffic today, but may not have the capacity to support steady growth of Internet traffic in the future.



Key Findings

Northwest Ohio's connectivity choices are being driven by a dominant and innovative local cable provider in the region. This is supplementing the dialup service available from incumbent telecommunications providers with high speed data services. Without continued strong and diverse growth, the area's infrastructure will not be sufficient to support future emerging high bandwidth applications.

Action Agenda

- Re-deploy economic development tools to boost network capacity to assure infrastructure stays ahead of demand.
- Support efforts to develop a robust network infrastructure map which will support Northwest Ohio's Information Technology (IT) and industrial retention and attraction efforts.

Access to Critical Services

Range of Services

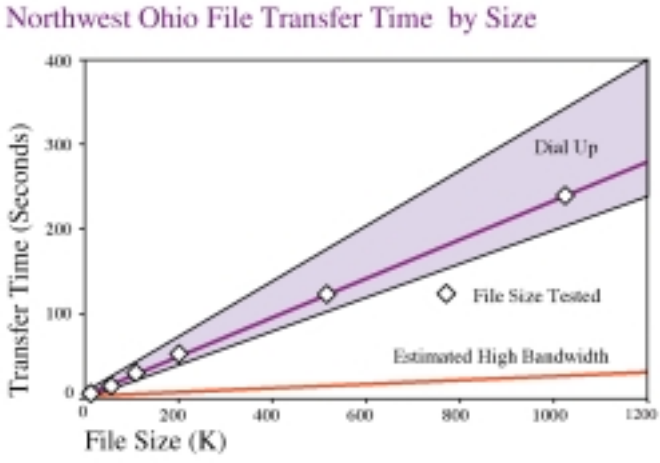
Dialup access at 56K is available throughout the region to residents and small businesses. Integrated Services Digital Network (ISDN) and cable modem service are available in urban and suburban core, but only 8% of Northwest users are connected at these speeds. T-1s are available throughout the region; limited high bandwidth access is available only in the Toledo metropolitan area. Only a narrow range of payment and service options are available to businesses throughout the region, with rural areas served solely by dialup service.

Affordability

For residents and small businesses, flat dialup service options are available universally. About 56% of Northwest Ohio households and 87% of Northwest Ohio businesses know of alternative service packages available from local Internet Service Providers (ISPs). Selected service options based on usage are available on a limited basis from selected ISPs and service areas in or adjacent to metropolitan Toledo. Higher bandwidth services are available through both ISDN and cable at flat rates based upon connection speeds, not actual usage. Large businesses have access to competitive pricing options for high bandwidth service.

Quality of Service

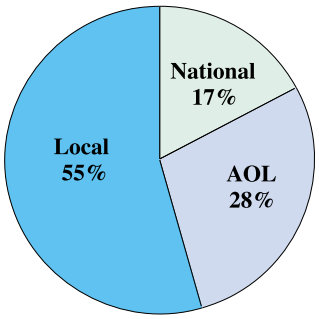
Dialup and higher bandwidth service setup times are nominal, and statewide, most accounts are active within 7-10 days. Ninety-three percent of users in business and 88% of the users at home in Northwest Ohio consider transmission speeds adequate for current levels of usage. Although more than 50% of these Northwest residents and businesses report disruptions in service at least once a month, 88% of these citizens rank service response as satisfactory.



Competition

For data services, a limited range of technologies and providers are available in urban and suburban areas, with even less choice in rural areas. With household usage at 6.6%, cable penetration is above the national average in this region largely because of an aggressive, innovative cable provider. The Northwest Ohio region has a competitive ISP market although providers generally have only one level of service. Buyers can find alternative service packages from the moderate number of ISP providers.

Northwest Ohio Customer Usage by Type of ISP



Key Findings

The urban and suburban Toledo market is adequately served by Internet providers with limited broadband service available and limited pricing options. However, non-incumbent telecommunications providers are not very strong. Rural areas of Northwest Ohio have even more limited choices.

Action Agenda

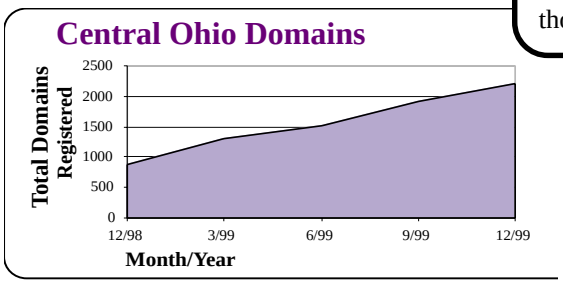
- Support statewide legislative and regulatory efforts to broaden technology and service choices for rural consumers.
- Provide discounted Internet access service to small businesses through chamber and trade associations.

Business Online

Domains

Franklin and Delaware Counties are among the top three Ohio counties in terms of domains per thousand capita in Ohio (1.75 per thousand capita). The total number of domains in the Central Ohio region increased by 154% in 1999, well above the national average domain growth rate.

1.19
domains per thousand population

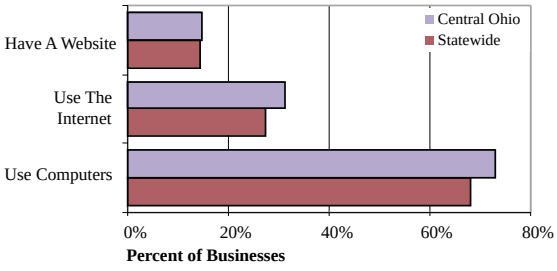


Source: Network Solutions Inc.

Websites

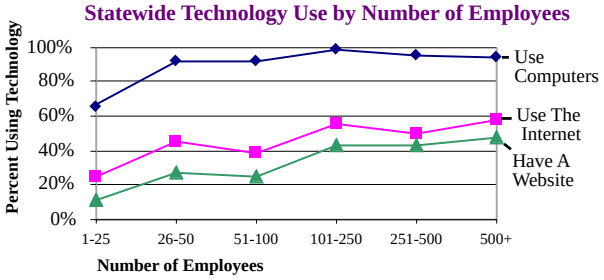
Central Ohio businesses lag behind national averages in terms of using websites to run and promote their businesses and sell their products, with about 15% of the businesses using websites. Overall, businesses in the transportation, retail and financial sectors are more aggressive at using highly interactive content to attract new customers. Throughout Ohio, very few businesses are using tracking or push technology to retain customers. While there are companies with websites that demonstrate latest best practices in web usage, these are not widely used.

Business Use of Technology . . .



. . . varies with the number of employees

Statewide Technology Use by Number of Employees



Market Development & Business-to-Business Transactions

Fifteen percent of Central Ohio businesses have a website but 82% of those cite competitive pressure and new customer attraction as primary reasons for creating a web presence. This indicates an aggressive growth market. There are few significant business-to-business electronic transactions except in those Central Ohio industrial sectors with strongly linked supply chain management systems, such as automotive original equipment manufacturers (OEMs) and logistics and distribution. Twenty-seven percent of Central Ohio businesses use the Internet, and 7.1% of those use Electronic Data Interchange (EDI) with suppliers or customers.

Central Ohio Business Best Practice Sites

Worthington Industries:
www.worthingtonindustries.com
Bank One:
www.bankone.com
Ohio Health:
www.ohiohealth.com
The Limited:
www.limited.com
Nationwide:
www.nationwide.com
Sterling Commerce:
www.sterlingcommerce.com
Victoria Travel & Tours:
www.victoria-travel.com
Qwest:
www.qwest.com

Networking

Local Area Networks (LANs) are used in 33% of Central Ohio businesses. Most businesses with a Wide Area Network (WAN) also have a LAN. Nevertheless, few businesses indicate that they rely on e-mail as their primary form of business communication. Based on statewide findings, larger businesses are much more likely to have a LAN or WAN.

33% businesses have a LAN

15% businesses have a WAN

Key Findings

Businesses in the Central region, while among the most advanced in Ohio, are not aggressive users of websites for marketing or selling. Recent growth rates show that Central Ohio businesses are adapting new technologies more quickly than national rates.

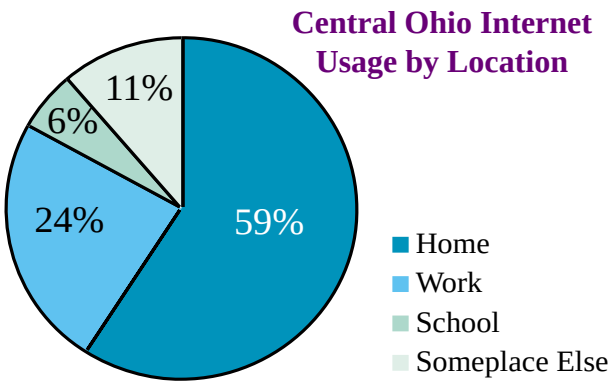
Action Agenda

- Use Chamber and business outreach community to stress critical need to build online presence and master e-commerce skills.
- Offer a member benefit to companies that provides e-commerce packages that introduce how to use the Internet as a productive business tool.
- Research case studies of local companies - provide cost/benefit information promoting the use of websites and conducting business-to-business transactions.
- Research what e-commerce companies need to thrive and develop strategies that attract them to the region.
- Attract new investments by building a national profile and awareness of what this region offers.
- Conduct small business counseling sessions that contain an e-commerce component.
- Encourage the appropriate use of technology through entrepreneurial committees.

Citizens Online

Internet Access at Home and at Work

The Central Ohio region matches the national average in terms of computer ownership and Internet usage. Fifty-seven percent of all Central Ohio citizens own a computer and 42% are online and log on weekly. Twenty-one percent of these Central Ohio citizens cite lack of access as a barrier to getting on the Internet. In response, the city of Columbus is developing a plan to expand the number of public access points at non-traditional sites, such as churches and community groups.



Schools

While over 90% of all Central Ohio schools are wired, some areas within the city's core and in rural areas lack adequate updated hardware or facilities for effective educational use. Seven out of 10 schools in Ohio have every classroom connected to the Internet. Eighty-six percent of Central Ohio schools offer staff and teachers Internet training either on or off site but there is a perceived lack of information technology skills and an absence of information technology curriculum offerings.

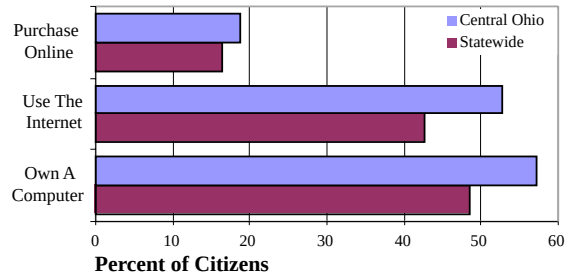
Libraries

Through the Ohio Public Library Information Network (OPLIN), libraries in Ohio boast an outstanding array of network services and public access to information, databases and resources. In Central Ohio, there are 66 buildings with Internet access and 843 workstations providing free public access to the Internet, access to web-based e-mail for independent professionals, and computer hardware, software, and training. The Columbus Metropolitan Library system was named as one of America's best public libraries based upon a Hennen American Public Library Rating (HAPLR) in the American Libraries Journal, January 1999.

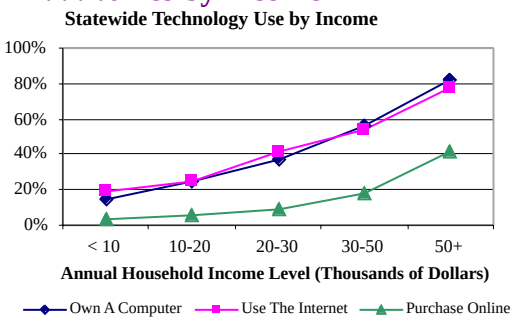
OPLIN

Ohio Citizens Online

Household Internet use . . .



. . . varies by income



Key Findings

Central Ohio has broad citizen and household usage of the Internet, particularly relative to state averages. Public access through schools, community centers and libraries is well utilized and planning efforts are in place to expand public access in the community through non-traditional means.

Action Agenda

- Educate more teachers to share knowledge with students to boost computer literacy by using DeVry Fellowship opportunities.
- Use private sector computing facilities for public training and seminars.
- Support increased number of information technology courses in curriculum offerings.

Community Planning

New Communities Created

Central Ohio has invested in a strong economic development presence on the Internet through the Greater Columbus Supersite. There are numerous online resources supporting hobbyists and local interest groups online, many of which are supported by local ISP providers. The Greater Columbus Free-Net provides low-cost public access with minimal interruptions.

Central Ohio Websites of Interest

Greater Columbus Supersite
www.columbus.org

Greater Columbus Free Net
www.gcfn.org

Delaware Chamber
www.delaware.org

Employment Opportunities and Skills

Several local colleges and proprietary schools in Central Ohio provide an IT curriculum and numerous degree programs. Local chambers and businesses are actively changing curriculum content to improve graduates' technology literacy through a number of workforce initiatives. Four local one-stop employment service centers exist and provide job search and resume posting services. The Central Ohio region has been a leader in implementing OhioWORKS, currently the central job site for the state, providing job links and online resume postings. Franklin County job service offices have united to cross train and cross refer job applicants through their entire range of Worksource programs (www.worksource.net).

www.ohioworks.com

Planning

Columbus has focused its energies on developing strong incubator and commercialization programs devoted to spurring high technology development. The Technology Leadership Council, Greater Columbus Chamber of Commerce, and numerous other local technology groups are focusing on information technology and its potential to boost jobs and the economy in this region. Many of these initiatives, groups and associations have improvement strategies in development or in early implementation stages, and they are beginning to concentrate on integrating these programs with others.

Government Websites

Few government units outside of the metropolitan Columbus area are online. Of those cities online, there are few government resources, downloadable forms or other self-service options for citizens. No local government unit provides procurement online.

Central Ohio Government Websites of Interest

City of Columbus
www.ci.columbus.oh.us

Key Findings

The Central Ohio region has strong individual community technology planning efforts that could be maximized by further coordination between the groups. There must be an aggressive effort to bring local government units online.

Action Agenda

- Identify electronic commerce initiatives and interested organizations in order to maintain a directory.
- Conduct ongoing information exchanges with identified organizations to create coordinated regional technology planning efforts.
- Develop vertical government portals based on common themes of interest, such as Workforce and Economic Development or Electronic Commerce, to share costs of hosting and maintaining Web-enabled citizen services.

Glossary of Terms

Access—The technology choices available by which users can connect to the public data network at the level they demand or need (dialup, cable, DSL, ISDN, wireless, etc.)

Bandwidth—The capacity of a transmission channel to move data among locations.

Cable modem—A device that enables a personal computer to be connected to a local cable TV line and receive and send data.

Dialup access—Refers to connecting to the Internet via a modem and standard telephone line.

Domain name—The unique name that identifies an Internet site and its address.

DS3 (Digital Signal 3)—A standard digital transmission rate of approximately 45 Mbps.

DSL (Digital Subscriber Line)—A technology which enables the ordinary copper component of telephone lines to carry data at rates much higher than ISDN.

E–commerce (Electronic commerce)— Commercial and non-commercial transactions facilitated through the use of networked technologies.

Gbps (Gigabits per second)—A measurement of the rate of speed at which data is transferred (e.g., 1 Gbps equals 1 billion bits per second).

Infrastructure—The communication networks that connect users to the Internet.

Internet—The collection of interconnected networks that use the IP protocols.

ISDN (Integrated Services Digital Network)—A service that allows for higher data transmission speeds and is capable of handling at least two services over one line simultaneously (i.e., voice and fax or voice and data).

ISP (Internet Service Provider)—A company or organization that provides users with connectivity to the Internet.

Kbps (Kilobits per second)—The rate of speed at which data is transferred (e.g., 1 Kbps equals 1,000 bits per second).

LAN (Local Area Network)—A network of interconnected workstations that share the resources of a single processor or server within a relatively small geographic area, such as an office.

Mbps (Megabits per second)—A measurement of the rate of speed at which data is transferred (e.g. 1 Mbps equals 1 million bits per second).

OC3 (Optical Carrier level-3)—An optical fiber line that supports digital signal transmissions at 3 times the base rate of 51.84 Mbps or approximately 155 Mbps.

OC12 (Optical Carrier level-12)—An optical fiber line that supports digital signal transmissions at 12 times the base rate of 51.84 Mbps or approximately 560 Mbps.

OC48 (Optical Carrier level-48)—An optical fiber line that supports digital signal transmissions at 48 times the base rate of 51.84 Mbps or approximately 2.5 Gbps.

OC192 (Optical Carrier level-192)—An optical fiber line that supports digital signal transmissions at 192 times the base rate of 51.84 Mbps or approximately 9.7 Gbps.

T1—A commonly used line for Internet connectivity that supports digital transmissions at 1.5 Mbps.

Usage—The extent to which business, government and household users utilize the Internet access and infrastructure available to them.

WAN (Wide Area Network)—A geographically dispersed telecommunications network.

Wireless access—A communications system in which radio-frequency or infrared waves carry a signal through the air, rather than along a wire.

xDSL (Digital Subscriber Lines)—One of many variations of DSL, the most common of which is ADSL, asymmetric digital subscriber line service.

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