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

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

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Statewide Steering Committee

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).

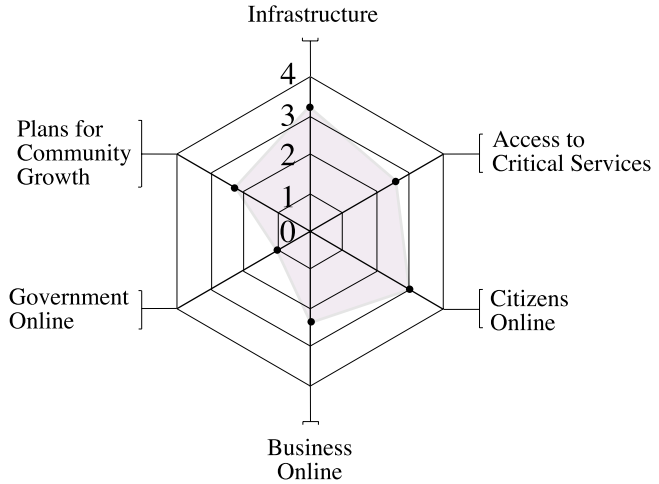
The Internet and growth of e-commerce as a way of doing business has thrust Ohio's industrial base into a time of turbulent change. Network traffic doubles every six months and forecasts show that business-to-business e-commerce will be a major driver of our state's economy in the next decade, generating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



Central Ohio's Electronic Commerce Readiness

Central Ohio's overall ratings are based on six summary aspects of the Computer Systems Policy Project (CSPP) grid. The CSPP grid provides national benchmarks on e-commerce readiness for communities and regions at www.cspp.org. ECom-Ohio collected and analyzed data to evaluate the State of Ohio's performance based on the CSPP benchmarks.

Infrastructure Capabilities

Components of E-Commerce

Today, Central Ohio has aggressive business and household usage of the network infrastructure in place. Many e-businesses and dot.com companies have become strong performers in the local economy. Their continued growth and retention, however, is dependent upon adequate infrastructure and network resources to accommodate more broadband applications by Central Ohio business-to-business e-commerce vendors and e-tailers.

Components of E-Commerce Defined

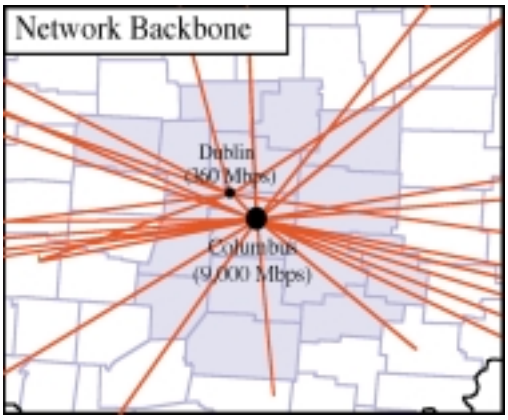
Infrastructure: The communication networks that connect users to the Internet.

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.

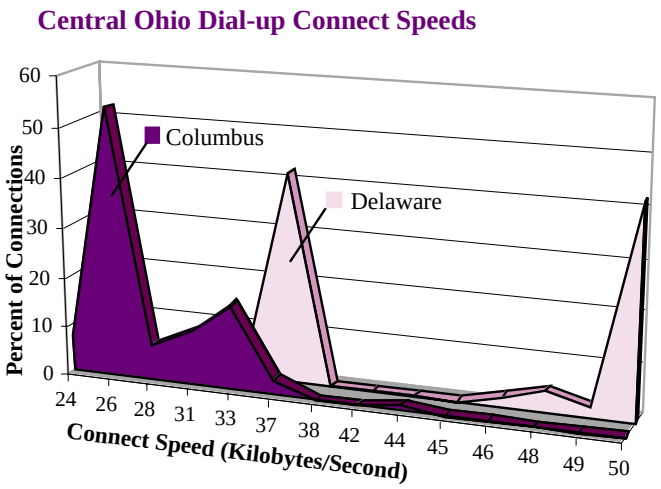
Available Local Backbone

Connectivity in Central Ohio has significantly improved in the past year with the dominant presence of Qwest Communications. Connections at 1.5 Mbps (T1) speeds are available in most of the region's urban and suburban areas with most access available in the Columbus metropolitan area. Access capacity from 10 different service providers totals 9,000 Mbps to points outside the region, providing strong network redundancy. Wireless access to the Internet is not available. An aggressive cable provider supports 45Mbps uploading to the Internet from residential desktops in zones where cable modem technology is deployed. This serves about 5% of Central Ohio households and 8% of area businesses — a higher rate of broadband penetration than national averages. About 14% of Central Ohio businesses use T1 or Integrated Services Digital Network (ISDN) connections to the Internet.



Ability to Meet Demand

Connection attempts from the Central Ohio region are highly reliable; 95% of all connection attempts are successful. Network slowdowns occur during peak hours but rarely deny access. Sixty percent of Central 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 high bandwidth Internet traffic in the future.



Key Findings

Central Ohio's connectivity choices are broad in metropolitan areas with strong network links to the national Internet backbone. Although the region has aggressively adopted high bandwidth access, infrastructure is not sufficient to support future emerging high bandwidth applications because of a lack of competition and market penetration.

Action Agenda

- Research and create economic development tools to support infrastructure and e-business growth.
- Research business desires and needs in terms of infrastructure.
- Benchmark Central Ohio region against others to see what the most advanced regions are offering.
- Identify and pursue possible government incentives/subsidies to encourage infrastructure providers to offer increased cable, digital subscriber lines (DSL) and wireless access.
- Examine impact of current tax policy on infrastructure improvements.
- Conduct survey of information industry prospects and existing companies in Columbus to see if having a robust network infrastructure map would influence their decision to locate or expand in Columbus; support efforts to develop such a map if it is determined to influence retention and attraction efforts.

Access to Critical Services

Range of Services

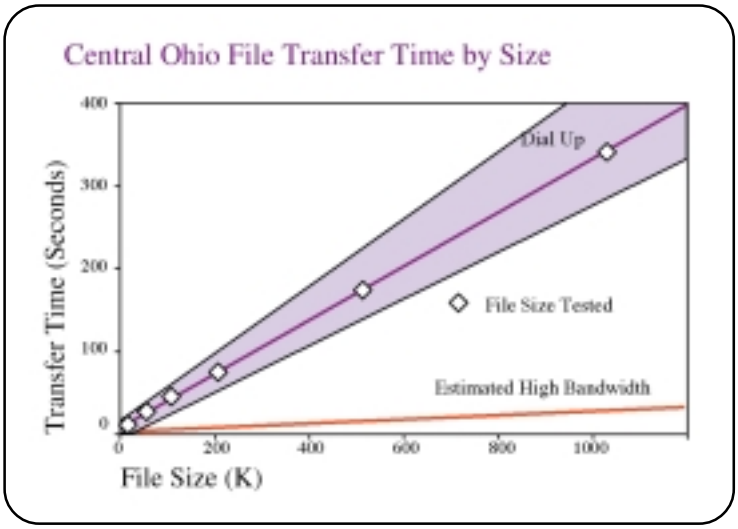
Dialup access at 56Kbps is available throughout the region. ISDN and cable modem services are available in urban and suburban areas, but only 7% of the population is connected at these speeds. T1 and ISDN service is available throughout the region; high bandwidth cable access is available in Franklin County. However, in the region's rural areas without access to DSL, ISDN or cable service, businesses have had to install their own high bandwidth lines to connect facilities to central points in Columbus. A wide range of payment and service options are available to businesses.

Affordability

For residents and small businesses, flat dialup service options are available universally. Nearly 50% of all Central Ohio households and 75.6% of Central Ohio businesses know of a variety of Internet Service Provider (ISP) options and packages. 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 from multiple providers in urban areas.

Quality of Service

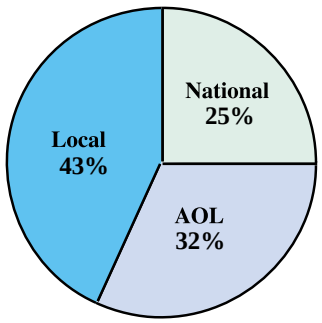
Dialup and higher bandwidth service setup times are nominal, and statewide, most accounts are active within 7 to 10 days. Most users in business and at home consider transmission speeds adequate for current levels of usage. Even though more than 50% of the residents and businesses report disruptions in service at least once a month, 86% of the consumers and 87% of the business users rate service response as satisfactory.



Competition

For data services, a wide range of technologies and providers are available in urban and suburban areas, there are fewer choices in rural areas. Reaching 4.5% of the region's household users, cable penetration is above the national average. Franklin County has a highly competitive ISP market, although providers generally have only one level of service. The region's rural areas have fewer ISP options. Discriminating buyers can find alternative service packages from a large number of ISPs but no customization is allowed.

Central Ohio Customer Usage by Type of ISP



Key Findings

The urban and suburban Greater Columbus market is highly diverse and boasts a variety of service options for broadband service in terms of technology (cable, dialup, ISDN, T-1), price, and type of provider. Given the strong concentration of Information Technology (IT) firms in the Greater Columbus area, the network infrastructure is one of the region's most important assets. Fewer access choices are available to Central Ohio's rural areas.

Action Agenda

- Support statewide legislative and regulatory efforts to broaden technology and service choices available to rural consumers.
- Investigate the ability of the Public Utilities Commission of Ohio to broaden technology and service choices available to rural consumers.
- Research possible private/public partnerships to deliver access to rural areas.
- Examine use of Industrial Development Bonds (IDBs) to build infrastructure.
- Offer to small businesses a member benefit that provides affordable access to ISPs through strength in numbers; generate a "pool" of users similar to insurance of workers' compensation pools.

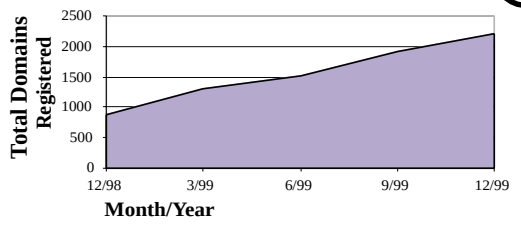
Business Online

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

Central Ohio Domains

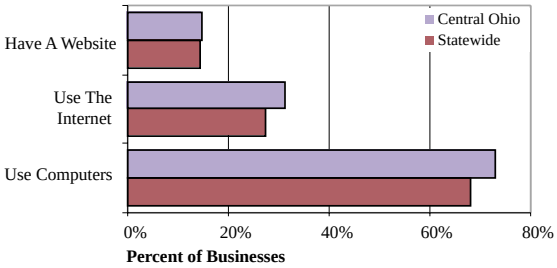


Source: Network Solutions Inc.

Websites

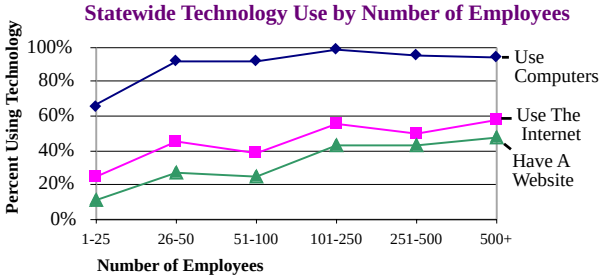
Central Ohio businesses lag behind national averages in terms of using websites to run and promote their businesses and sell their products, with about 15% of the businesses using websites. Overall, businesses in the transportation, retail and financial sectors are more aggressive at using highly interactive 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.

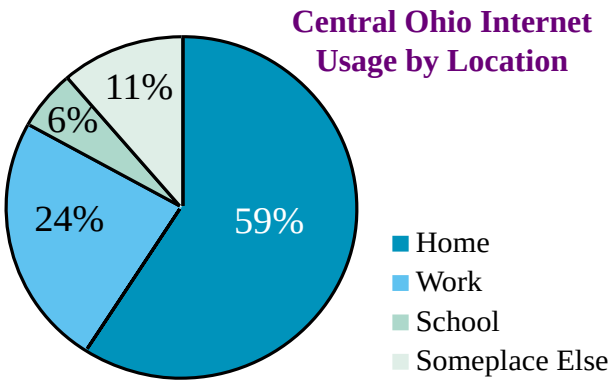
Action Agenda

- 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.

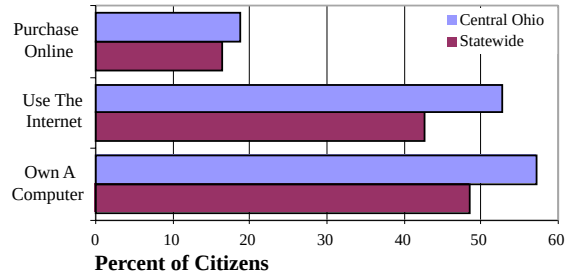
Libraries

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.

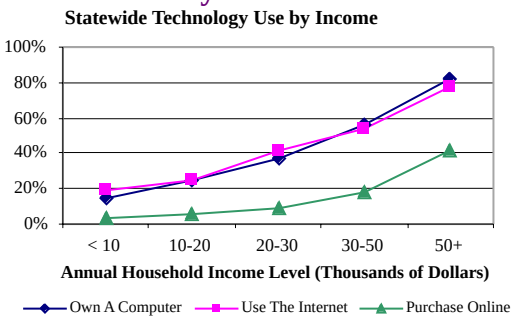
OPLIN

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).

Ohio WORKS .com
The number one site for Ohio employers and job seekers
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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