

The City that NetWorks:

Transforming Society
and Economy
Through Digital
Excellence



CHICAGO, MAY 2007

**REPORT OF THE MAYOR'S ADVISORY COUNCIL
ON CLOSING THE DIGITAL DIVIDE**

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Acknowledgements

The Mayor's Advisory Council on Closing the Digital Divide is grateful to Jerry Huang, of the John D. and Catherine T. MacArthur Foundation, and Diane Kallenback and Michael Paulos, from the office of Alderman Margaret Laurino, for their counsel, assistance and commitment to the project. The Council also would like to express its special appreciation to Robert Weissbourd, principal in RW Ventures, for playing the lead role in drafting the report, and to Robin Gaster, president of North Atlantic Research, Robert Atkinson, president of Information Technology and Innovation Foundation, and Joseph Grant of RW Ventures for their invaluable help in organizing the extensive materials and recommendations in the report, and for research, writing, and insightful review. Thanks go as well to Sarah Kremsner of Mayor Daley's office, Jose Cerda III, formerly from that office, and John Karnuth from the city's Department of Business and Information Services. Mayoral Fellows Johanna Tighe, Jose Maeso and Philip Kavoor helped with early research. Avi Stopper, from the Market Strategy Group in Chicago, made sure the Council understood the perspectives of business, university and other leaders in its deliberations. The Council also is indebted to the leadership and staff at the Harold Washington Library Center, Woodson Regional Library, Sulzer Regional Library and the West Chicago Avenue Branch Library for hosting public hearings. Final thanks to Tom Waldron for editing the report, Elizabeth DiPalma Design and the Hatcher Group for project management.

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Foreword

The Advisory Council on Closing the Digital Divide was challenged by Mayor Richard M. Daley to “make recommendations to help ensure universal digital access and to improve community, educational, economic and other outcomes.” We saw closing the digital divide as an essential part of the City of Chicago’s larger effort to secure its position as a preeminent global city. Chicago’s global leadership will, in large measure, depend on the full realization of its human capital, the strength of its business sector and the vitality of its communities. The resources of the Internet play a critical and increasing role in each — through information, connections and new markets. We saw closing the digital divide as both an imperative and the product of a broad effort, involving every sector in the city, to bring about digital excellence.

Digital excellence is achieved when all who wish to can integrate the Internet comfortably into their lives — a state of active and meaningful participation that increases knowledge and enhances connections across time and place. Digital excellence is an ambitious goal that ties the future of the city to the strength of its residents and lays the groundwork for the use of the Internet in transformative ways. As more people integrate technology into their lives, businesses and communities, we will see stronger and more inclusive consumer, housing and labor markets; healthier and more productive communities, and more effective government.

As our report describes, digital excellence leads to a transformation that benefits the city and its residents and enhances the city’s role in the national economy and its position on the global stage. This will not happen without the development of a digital climate, a state of awareness in which virtually everyone — people, businesses, service providers, government, community organizations and others — fully understands and embraces the potential of technology in everything they do.

We are aware of the challenges we face: the barriers that limit access or fail to encourage meaningful participation. By its nature, the report does not fully address the challenges and potential for use of technology by all of the groups that would benefit from a comprehensive campaign for digital excellence — seniors, people with disabilities, non-English speakers and others. The report does, however, propose a mechanism to ensure that these groups are reached, their voices heard, and their needs addressed as solutions are designed now and in the future.

In our recommendations, we propose immediate actions as well as a long-term, durable approach that will enable leaders in the drive for digital excellence and transformation to understand dynamic changes in technology and new divides that may emerge over time, respond with new solutions and seize new opportunities.

In the environmental sphere, the city has embraced the ambitious goal of becoming the “greenest” city in the country, if not the world. We propose nothing less for digital excellence — Chicago as the global leader in ensuring that its residents, its businesses and its communities are informed, connected and empowered through technology. We are optimistic that this goal can be achieved. Many of the pieces are in place. Grassroots organizations are already at work, organizing around the concept of digital excellence and advocating for many of the recommendations in our report. Demonstration projects are underway in

local communities. Universities are reaching out to their neighbors. The Chicago Public Library is an early and effective leader in technology and public access to the Internet. The Chicago Public Schools are piloting innovative approaches to learning with computers. Businesses are funding efforts to bring technology to local residents, and community technology centers are on the front line of training and access across the city.

Our report asserts that it is time to harness and accelerate these many efforts, enhance and support them, consolidate and take them to scale, attract additional partners, inject new energy, and sustain it all until Chicago is the envy of the world — a fully connected, dynamic hub at the center of the global economy and society.

Members of the Council would like to thank all those who took the time to share their views at public hearings and submitted comments in writing. We also appreciate the candid input from business leaders, college and university representatives, community and technology leaders and others. The recommendations reflect much of what we heard, and we were pleased that Chicago has such a firm foundation to build on to reach the goal of digital excellence and transformation.

Julia Stasch
Chair
Advisory Council on Closing the Digital Divide

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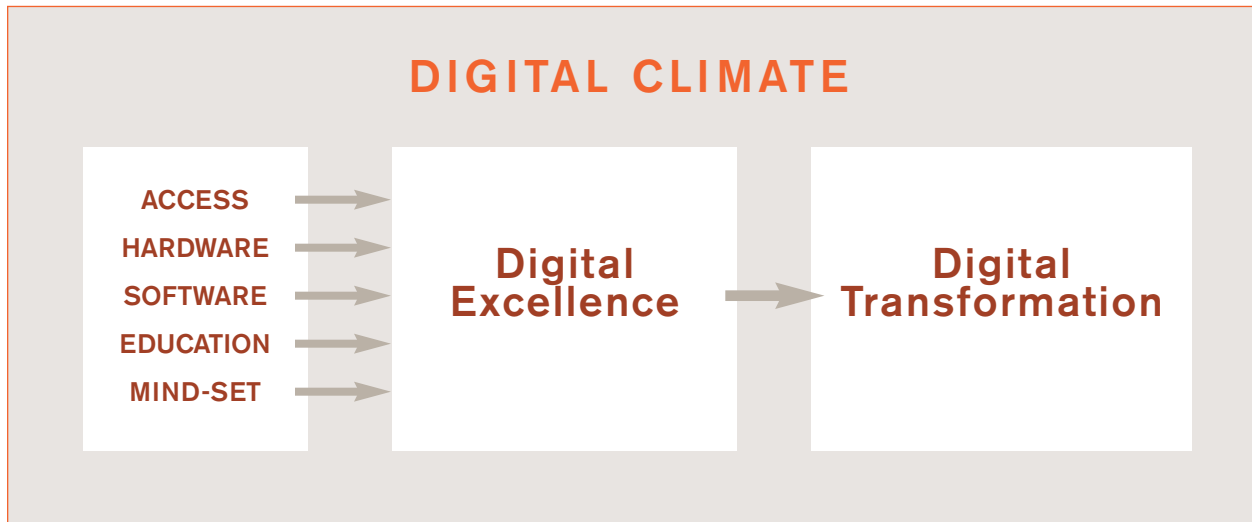
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“Digital technology is revolutionizing our world. It is changing the way that we do business, the way we learn, the way we buy and the way that we interact with each other. It is creating a world in which the manufacturing of ideas is as important as the manufacturing of goods. It is diminishing the supremacy of traditional economic assets — such as natural resources, proximity to marketplaces and the weather — and increasing the importance of an evolving telecommunications infrastructure that better connects people and businesses to the information and opportunities they seek, wherever they may be.”¹

Executive Summary

Capitalizing on this digital revolution, the City of Chicago is seeking private sector provision of a ubiquitous, affordable wireless broadband network. In that context, Mayor Richard M. Daley appointed the Advisory Council on Closing the Digital Divide and charged it to make recommendations to help ensure universal Internet access and to build on that access to improve community, educational, economic and other outcomes.

The Vision



A citywide wireless broadband network in Chicago could help bring about the modern equivalent of the railroad era — the boom years that made Chicago a world-class city. Like the railroads of yesteryear, the Internet is the infrastructure of today's global society and economy. To search for jobs, learn about health care, buy or sell goods and services or simply stay in touch with family and friends, the Internet enables new levels of information, connection and transaction. In its emerging form, sometimes called Web 2.0, millions of people are collaboratively educating (Wikipedia), learning (the Genome Project), creating (YouTube) and engaging in commerce (eBay).² Most youth cannot imagine a day before the Internet: it is just that fundamental to American life in the 21st century.

As such, it is essential that everyone have the opportunity to tap into the Internet's rich resources — to participate in the digital age. Indeed, we all have a stake in closing what is known as the digital divide. Research has shown that inclusive economies and societies do better. Improving information resources

¹ Community Wireless Broadband Network Request for Proposal. City of Chicago Department of Business and Information Services, September 20, 2006, p. 5.

² Tapscott, Don, and Williams, Anthony. *Wikinomics: How Mass Collaboration Changes Everything*. Portfolio, 2006.

and networks for lower-income and unconnected communities helps those communities. As important, it also helps overall, by opening new markets, adding new resources to the economy and society, boosting productivity and incomes, reducing the costs of poverty and improving the relationship between government and citizens. As more people and institutions actively participate in the Internet, its transformative power grows for everyone.

DIGITAL EXCELLENCE

The initial goal, then, is for everyone to participate fully in the Internet. If successful, the wireless broadband network itself will make a signal available everywhere — a key first step. This step provides the catalyst for creating universal meaningful participation, where everyone will comfortably integrate the Internet into their daily activities. This level of active and capable participation is digital excellence.

Digital excellence has five key drivers:

1. **Effective Network Access** that is high-speed, reliable, affordable and available everywhere.
2. **Affordable Hardware** with capacity to connect to the Internet and tap into the full range of its visual and other resources.
3. **Suitable Software** that meets the needs of individuals, families, businesses and communities.
4. **Digital Education** that provides the training and technical support for users to become comfortable and proficient.
5. **Evolving Mind-Sets** that value learning, connecting and communicating through technology, and that recognize the business and other opportunities of expanding Internet participation.

This report focuses on these five drivers and their role in achieving digital excellence.

DIGITAL TRANSFORMATION

Ultimately, however, we aspire to universal meaningful digital participation because we also want to realize its transformative power in education, community, commerce and government. As more users integrate the Internet into their lives, businesses and communities, we will see more inclusive, efficient and prosperous housing, labor and retail markets; more effective government; stronger civic organizations; and more connected communities. These emerging opportunities to enhance economic, social and political systems are digital transformation. Pilot projects — “Digital Excellence Demonstration Communities” — will test how best to convert digital excellence into personal and community transformation.

DIGITAL CLIMATE

While digital excellence lays the groundwork for and naturally leads to digital transformation, one other, transcendent ingredient must be present. The excellence will not develop, and the transformative opportunities will not unfold, unless people, businesses, service providers, government, community organizations and others fully understand and integrate digital technology into everything they do. This requires pervasive digital awareness — a ubiquitous digital climate that animates and inspires excellence and transformation.

Digital excellence and digital transformation represent specific outcomes: universal meaningful participation and transformation of particular systems. Digital climate is different. It is a shift in thinking in which people and institutions are routinely aware of and constantly incorporate digital technology and opportunity into whatever they do. In a digital climate, meeting agendas routinely include the digital implications of any subject matter. On a personal level, resumes will routinely include a description of media literacy and digital proficiency, as these are increasingly key components of human capital.

The World Wide Web, like the world itself, is a dynamic place, where new opportunities are always arising, accelerated by the increasing participation of people and institutions. As a result, the next transformative opportunities cannot be foretold. Rather, the goal now is to create a climate — the environment for digital excellence and digital transformation — where everyone is aware and engaged, naturally generating and seizing emerging opportunities. In a digital climate, young people routinely find new ways to learn, businesses discover new markets and communities thrive.

Closing the digital divide must be seen as part of the larger opportunity for Chicago to transform institutions, the economy and communities. This is an inclusive vision, seeking to provide universal meaningful participation, expanded economic prosperity, strengthened communities and more effective government for all. Successfully closing the digital divide is an integral part of the transformation of Chicago into a thriving 21st-century information hub at the center of the global knowledge economy and society.

Execution

Delivering on this vision requires an undertaking commensurate with its ambitious scale and scope. The Mayor's Advisory Council on Closing the Digital Divide believes that a concerted, large-scale effort involving the public, private and nonprofit sectors will be necessary. New institutional capacity and resources will be required to bring about digital excellence, lay the groundwork for digital transformation and create the digital climate that sustains both.

CAMPAIGN FOR DIGITAL EXCELLENCE

Chicago should launch a sustained *Campaign for Digital Excellence* to become a city that continually takes advantage of digital technologies and opportunities. In this climate, digital opportunities become a natural part of nearly all deliberations, whether the subject is enhancing school performance, adult skills, business investment, entrepreneurship or community safety.

A campaign of this magnitude requires citywide leadership. Like the digital climate it seeks to create, the Campaign must be pervasive, thoroughly engaging the private, public and nonprofit sectors. Individuals must become digital citizens, acquiring technical skills and using the Internet to learn and to expand their participation in society and commerce. Public agencies, businesses and nonprofit organizations must bring digital awareness and participation into every aspect of their mission and activities. Private sector leadership must provide critical entrepreneurial energy and experience to deliver the five key drivers, and focus on business opportunities as new markets emerge in long-overlooked communities.

PARTNERSHIP FOR A DIGITAL CHICAGO

For such a major, cross-sector campaign, a substantial new institution is required. The Advisory Council recommends the creation of the *Partnership for a Digital Chicago*, which will represent all of the key stakeholders and have responsibility for overseeing Chicago's drive for digital excellence. Among other activities, the Partnership will organize and launch the Campaign; develop hardware, software and training packages and programs with the private and nonprofit sectors; develop financing and voucher programs; and raise financial resources through a *Digital Excellence Trust*. The Partnership will also be responsible for outreach, development of a citywide web portal, establishment of three *Digital Excellence Demonstration Communities* and assessment of the Campaign's efforts.

COMPREHENSIVE RECOMMENDATIONS

Section V provides detailed recommendations organized by sector and actor. Here, we summarize how we envision the recommendations fitting together to achieve digital excellence.

It is anticipated that a private vendor will deploy and operate Chicago’s wireless broadband network, so users will generally pay for access. However, to ensure that access is readily available to all regardless of income, the vendor contract will be expected to provide for areas of free access — expanding the free hot spots pioneered by the Chicago Public Library to parks, plazas and other public areas — and for subsidized pricing for low-income users.³

Affordable network access, of course, means little without the hardware and software necessary to connect to and use it productively. Computer access will become convenient and affordable through the proliferation of public access terminals throughout the city — at libraries, schools, parks, in lobbies of city buildings and at other public facilities; at universities; and even at stand-alone kiosks at banks and grocery stores. The number of home users, too, will grow dramatically, through a range of subsidized hardware and software packages. Refurbished computers and software will be made available at low cost, and users who complete training programs will receive vouchers for discounted hardware and software or subsidized financing through partnerships with financial institutions. Owning a computer and software will be more affordable than ever before. The private sector, participating in a *Partnership for a Digital Chicago Task Force on Hardware and Software*, will take the lead in developing specifications, packages and financing programs; organizing equipment donations; and negotiating vendor relationships. Programs and packages for small businesses will be developed as well.

Training and support, from beginner skills to advanced digital education,⁴ will be expanded and delivered through neighborhood community technology centers (CTCs) and by tech-savvy young people acting as “digital connectors” and technology ambassadors. There will also be more coordinated programming of libraries, schools, colleges and universities (including, for example, a new *Coordinating Council of Colleges and Universities on Digital Excellence*), and partnership programs with leading corporations and civic organizations to provide training. Companies with information technology expertise will set up neighborhood help desks and establish apprenticeship programs enabling young people throughout Chicago to build technical skills. Increased emphasis on media literacy and technology skills in the Chicago Public Schools will ensure that all graduates have not only basic digital skills, but also are fully prepared to participate in the knowledge economy.

The most important recommendations of this council — in some ways the most difficult to implement — focus on changing mind-sets. Potential new users must see the value in connecting to the network, and providers of applications, content, goods and services must see the value in attracting and serving these new users. Technology competitions will increase awareness of the value of digital skills, and awards will acknowledge leaders who champion digital excellence in their communities. A new citywide Internet portal, *Chicago Connects*, will allow Chicagoans to integrate the Internet into their everyday lives, putting a wealth of local information — about neighborhood businesses, real estate, services, politics, social events and more — at their fingertips.

³ Tiered pricing must not translate into tiered service; subsidized users must not be restricted to substandard speeds.

⁴ Online safety and computer security will be a crucial part of this education and support; see section VII.C for more details.

At the same time, content providers will begin to serve, and attract, a broader audience. This will mean websites that are easily used by those with limited English proficiency, or with poor eyesight, or who face other barriers. Over time, it will also mean expanding content, products and services for these new users. The city, with a new, high-level *Digital Excellence Officer* and acting through its departments, will lead by example, promoting digital excellence through expanded eGovernment efforts and continued movement of critical services and information online.

DIGITAL EXCELLENCE DEMONSTRATION COMMUNITIES

Finally, to demonstrate the power of a concerted, comprehensive approach, and to serve as seedbeds for new programming, the Partnership will select three neighborhoods as pilot Digital Excellence Demonstration Communities. These pilot efforts will seek to close the digital divide and demonstrate the power of digital excellence to catalyze change at the neighborhood level. They will reach out to nearly all of the households, businesses and institutions in the community to foster full digital participation. They will then seize the new development opportunities that arise as markets and social systems become more efficient, informed and connected.

Summary Recommendations

A. THE CAMPAIGN FOR DIGITAL EXCELLENCE

Chicago should launch a broad-based, multiyear Campaign for Digital Excellence to create and sustain a digital climate that pays continuing attention to achieving digital excellence and to seizing the transformative economic and social opportunities it creates.

B. THE PARTNERSHIP FOR A DIGITAL CHICAGO

The city should recruit committed civic leaders to organize and launch the Partnership for a Digital Chicago, a new nonprofit entity, housed at the Chicago Community Trust and led by corporate, philanthropic, city, community and technology industry representatives. Its mission will be to ensure that all of Chicago achieves digital excellence and takes advantage of the social and economic opportunities that arise from universal use of digital technology.

- 1. Planning and Coordination** The Partnership should take the lead in planning, updating and managing the Campaign and related activities.
- 2. Program Development and Certification** The Partnership should coordinate development and delivery of comprehensive programs and activities to address the five drivers of digital excellence — access, hardware, software, education and mind-sets.
- 3. Broad Outreach and Education** Using awards, competitions, high-profile spokespersons and role models, and targeting outreach to specific communities, demographic groups and businesses, the Partnership should undertake activities that ensure that everyone understands the importance of digital excellence and what is required to achieve it.
- 4. Portal Development** The Partnership should develop, support and market Chicago Connects, a citywide portal that will provide access to Internet resources for individuals and businesses, with specific focus on the interests of new users.
- 5. Community Coordination** The Partnership should ensure that it is connected to, and its activities are informed by, business, community, educational and civic organizations that share its commitment to digital excellence.

6. **Financing: The Digital Excellence Trust** The Partnership should create the Digital Excellence Trust, a donor-advised fund at the Chicago Community Trust. It should solicit corporate and philanthropic support for the Campaign, Partnership operations and the demonstration communities and play a leading role in developing and deploying financial programs and resources.
7. **Monitoring and Assessment** By monitoring the progress of the Campaign and the impact on digital excellence of the activities of all sectors, the Partnership should become the source of definitive data and assessment on digital access, opportunity and excellence in Chicago, which should be made public through an annual progress report.

C. THE PUBLIC SECTOR

The public sector should lead by example, demonstrating its commitment to a universal digital excellence that will place Chicago at the center of the global knowledge economy.

1. The City of Chicago

a. Coordination The city should make the organizational changes necessary to launch and help sustain the Campaign for Digital Excellence, including appointing a top-level Digital Excellence Officer responsible for ensuring the city's sustained commitment and attention to the goals of digital excellence.

b. Vendor Contract The city should negotiate an agreement with the primary vendor that provides the necessary conditions for universal access — sufficient speed, bandwidth and coverage at an affordable price.

c. Government Digital Climate All city departments should develop and deliver to the Digital Excellence Officer annual Digital Leadership Plans that identify how their activities and resources will help promote universal digital access and excellence, and how they will use the Internet and other digital technologies to transform their activities.

The plans should include activities such as:

- requiring, to the extent feasible, that all new residential development or significant renovations that use city subsidy or resources or require city approvals be high-speed Internet ready;
- requiring that every major renovation of a city-owned or -leased facility include broadband accessibility; and
- making tax increment financing proceeds available for digital-related activities.

d. eGovernment The city should move all possible services and information online, ensuring that all citizens can easily access services, and should consider discounting the cost of services accessed over the Internet. The city should also aspire to expand participatory democracy by enabling and encouraging resident feedback and debate on key issues.

e. Outreach and Digital Evangelism All city government departments should encourage a climate of digital excellence and transformation in Chicago by promoting the Campaign in their communications and cross-marketing where appropriate with the Chicago Connects portal and the Digital Excellence Demonstration Communities.

f. Support for the Digital Excellence Trust The city should ensure, to the extent consistent with optimizing the overall contract, that the Digital Excellence Trust receives an initial allocation of funds from the business arrangement with the successful wireless broadband network vendor and an annual allocation over the life of the contract.

2. **The Chicago Public Library** Already a leader in addressing the digital divide, the Chicago Public Library should continue to expand its historic role as an information provider and become a key provider of digital access, training and content.

3. The Chicago Public Schools The Chicago Public Schools (CPS) should ensure that all students are fully digitally literate by the time they graduate from high school.

Specific steps should include:

- digital skill proficiency for all new teachers and training plans and timetables for existing teachers;
- criteria for skills proficiency for students in grades 3, 6, 8, 10 and 12 and requirements for graduation at grades 8 and 12;
- a CPS-approved position of technology integrator to help teachers incorporate digital media literacy and skills in all aspects of student learning;
- solicitation of proposals under Renaissance 2010 for schools that incorporate digital media tools and digital literacy in all aspects of teaching and learning; and
- information about student and teacher digital literacy on individual school scorecards.

D. COLLEGES AND UNIVERSITIES

Colleges and universities, including particularly the City Colleges of Chicago, should move rapidly toward sharing, coordinating and expanding their digital excellence activities, including creating a Coordinating Council of Colleges and Universities on Digital Excellence; establishing a cross-institution, online directory of digital excellence activities; and incorporating into their strategic plans activities that promote digital excellence in their institutions and adjacent communities.

E. THE PRIVATE SECTOR

Companies, industry associations and executive leadership organizations should make the Campaign for Digital Excellence and the five drivers of change a top priority, worthy of senior management time and company and other resources.

- 1. Hardware and Software** The private sector should lead a new Partnership for a Digital Chicago Task Force on Hardware and Software to address large-scale donations of equipment, competition for vendor arrangements and financing.
- 2. Digital Education** Companies with information technology (IT) expertise or that provide IT training for staff should support digital education in Chicago neighborhoods through partnerships with community technology centers and local schools as well as internships and apprenticeship programs.
- 3. Mind-Sets** Leading companies should highlight and promote the digital age's new opportunities by offering competitions and awards, supporting advertising and other activities of the Campaign for Digital Excellence and providing goods and services to emerging digital markets.
- 4. Economic Transformation** In addition to helping deliver the drivers of digital excellence, the private sector should identify and support emerging economic opportunities, including in particular for small businesses.

F. COMMUNITY-BASED ORGANIZATIONS AND THE NONPROFIT SECTOR

- 1. Community-Based Organizations** Community-based organizations should make the Campaign for Digital Excellence a top priority, expanding the distribution of computers and delivery of goods, services and training; ensuring quality control; and conducting outreach to less digitally connected individuals and groups.
- 2. Foundations** Foundations should make the Campaign for Digital Excellence and the demonstration communities grant-making priorities.

G. BRINGING IT ALL TOGETHER: *DIGITAL EXCELLENCE DEMONSTRATION COMMUNITIES*

- 1. Digital Excellence Demonstration Communities** Three Digital Excellence Demonstration Communities should be selected by the Partnership for comprehensive programming to achieve digital excellence and transformation and to serve as test beds for programs to be deployed throughout the city.
- 2. Achieving Digital Excellence** Demonstration projects should aspire to reach every household, business and institution in each target community with an affordable bundle of hardware, software and training that will enable them to participate meaningfully in digital activities.
- 3. The Neighborhood Portal** Each Digital Excellence Demonstration Community should have a neighborhood portal that provides extensive, accessible, relevant local content; acts as a gateway to content throughout the Internet; and ultimately allows local residents, businesses and institutions to self-publish and participate actively in community affairs and commerce.
- 4. Achieving Digital Transformation** As very broad, meaningful digital participation is achieved — when local residents, businesses, schools, health centers and community and other organizations are participating routinely in the community portal — the demonstration communities should seize emerging on- and offline business and community-building opportunities.

H. EVALUATION

The Partnership for a Digital Chicago should work with a local university center to undertake statistically valid baseline surveys — in the demonstration communities and citywide — and track progress.

I Context: Challenge and Opportunity



“In the 21st-century economy, everyone needs to have access to computer technology to succeed in life... computer literacy is a fundamental skill in the modern world ... in technology, as in too many other areas of our society, there is a wide gap between the haves and the have-nots.”

— Mayor Richard M. Daley

Founded on the waterways as an early transportation hub, Chicago became a great agricultural and industrial center at the crossroads of rail and highways. Now, as then, infrastructure drives development: the core infrastructure today, in the global knowledge economy, is the Internet.⁵ Already a global city by virtue of its knowledge, business and technology accomplishments, Chicago plans to remain a leader by taking full advantage of the information superhighway and the digital revolution.

Information drives the transactions that constitute our economy and society. The loan decisions of a banker, the location determinations of a storeowner, the hiring networks of employers, the purchasing decisions of consumers, all depend on the cost, quality and flow of timely information. Information also underpins civic organizations, links neighborhoods and determines how efficiently government delivers services. The absence of information drives up transaction costs, increases risk, stifles investment and isolates people, assets and neighborhoods.

All of this information flows increasingly — often exclusively — over the Internet. Just as the railroads opened up markets to exchange goods, broadband networks facilitate the exchange of information and enable new social and economic transactions.⁶

Today, approximately 70 percent of the U.S. population is online. We are connected by computer networks, cell phones, gaming systems, BlackBerries — by more tools every day. In less than 10 years, the Internet has fundamentally transformed how we work, shop, educate our children, communicate and even date.

However, a quarter of our population remains offline. Among some populations — low-income families, minorities, people with disabilities and seniors — many more than a quarter are offline. In Chicago:

⁵ See National Academy of Sciences, National Academy of Engineering and Institute of Medicine. *Rising above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*. NAS, NAE and IOM, 2007, p. 10.

⁶ This fundamental and transformative role of the Internet is part of the information technology revolution driving the knowledge economy. See *Community Wireless Broadband Network Request for Proposal*, City of Chicago Department of Business and Information Services, September 20, 2006, p. 5.

- 25 percent of households have no Internet access at all⁷;
- 22 percent of households with children have no Internet access at home⁸;
- more than 50 percent of people with less than a high school education have no Internet access;
- more than 45 percent of families with household incomes below \$20,000 have no computers, and more than 50 percent have no Internet access;
- about 50 percent of all people age 21 or above with disabilities have no Internet access; and
- overall, about 45 percent of Chicago households lack broadband access.⁹

Even for those getting online, a new divide is opening, as broadband speed becomes more important for new media, and those with only low-speed access are again left behind.

This is a critical problem. The growth sectors of the economy — IT, finance and insurance, health care and education — are highly dependent on electronic communications. Digital literacy is becoming as important as reading, writing and math. Increasingly, those without computer skills or access to high-speed Internet service need not apply.

THE MISSING POPULATIONS

Nationally:

- 67% of adults 65 and older (compared to 30% aged 50–64);
- 42% of African Americans;
- 31% of English-speaking Hispanics;
- 64% of those without a high school diploma;
- 51% of households with less than \$30,000 annual income; and
- 62% of people with disabilities

do not use the Internet.

Sources: “Demographics of Internet Users.” Pew Internet and American Life Project, December 2006, www.pewinternet.org/trends.asp; “The Ever-Shifting Internet Population.” Pew Internet and American Life Project, April 2003, p. 30, http://www.pewinternet.org/pdfs/PIP_Shifting_Net_Pop_Report.pdf.

The digital divide is not just a problem for the excluded: *everyone has a stake in closing the digital divide*. Common sense suggests, and research confirms, that inclusive economies and societies do better. Greater prosperity for all results when we take full advantage of human resources, assets and market opportunities. Improving the information resources and networks of lower-income communities helps those communities, but it also opens up new markets for business, expands the supply of labor, provides new sources of entrepreneurial energy, reduces the costs of poverty and expands the size of the network, making other users better off as well. Expanding participation translates into stronger, more connected communities and increased economic opportunity. It is in these multiplier and systems-transformative effects that the real power of the Internet unfolds.¹⁰

⁷ More than 30 percent have no Internet access at home.

⁸ Nationally, differences also exist for children across race and ethnicity, economic status and disability. Children from higher-income families (annual income over \$75,000) are more than twice as likely to have access to a computer at home than are those in very low-income families: 96 percent compared to 45 percent. For Internet access, the figures are 93 percent versus 29 percent; for high-speed access, 51 percent versus 7 percent; see *Measuring Digital Opportunity for America's Children: Where We Stand and Where We Go from Here*. The Children's Partnership, 2005.

⁹ All figures are based on the PEW March 2006 Information Technology Use Survey; U.S. Census 2005 American Community Survey; and MCIC calculations.

¹⁰ Atkinson, Robert D., and McKay, Andrew S. *Digital Prosperity: Understanding the Economic Benefits of the Information Technology Revolution*. Information Technology and Innovation Foundation, March 2007, www.itif.org.

This is the inclusive vision that inspires Mayor Daley and the wireless initiative: achieving universal meaningful participation creates expanded economic prosperity, strengthened communities and more effective government for all. Successfully closing the digital divide is an integral part of this larger, transformative opportunity for Chicago to thrive as a 21st-century hub, at the center of the production and flow of the information, knowledge and innovation driving the global knowledge economy and society.



II Chicago Steps Up:

The Mayor's Advisory Council on Closing the Digital Divide

“The City of Chicago has an opportunity to comprehensively address many social and economic inequalities by intentionally including the poor in its vision for the future.

To accomplish this goal, the City of Chicago must not only focus on the availability of broadband Internet access, but also on its affordability, accessibility, and utility to low-income families.”

— Chicago Wireless Task Force Recommendations

Change is already underway in Chicago. Schools, libraries, businesses, nonprofits and countless individuals are working to bring us closer to this vision of digital transformation.¹¹

Now the City of Chicago is seeking a private sector partner to provide a high-speed wireless broadband network for Internet access throughout the city, including free service in schools, parks and major public places.¹² Issued on September 20, 2006, the city’s Request for Proposals for a Community Wireless High Speed Network makes the case for a sustained effort to ensure that Chicago is a truly connected and competitive city. Central to such an effort is enabling every Chicago resident to be informed, engaged and able to take advantage of social and economic opportunities that arise from fluent use of digital technology.

The city’s four broad goals for the wireless network reflect both the immediate need to close the digital divide and the broader opportunities that arise from universal participation:

¹¹ For example, the 79 branches of the Chicago Public Library are wireless hot spots, making free high-speed Internet access available in all of the city’s communities; CTCs provide hands-on training and support to people throughout the neighborhoods; the Chicago Digital Access Alliance is promoting and organizing support for digital excellence; Chicago Public Schools are experimenting with “1:1 learning” where every student has a laptop computer and more personalized technology literacy instruction; through the *Eliminate the Digital Divide Law*, the Illinois Department of Commerce and Economic Opportunity awards funds to local organizations to increase the technical literacy of lower-income residents; and corporations throughout the region donate used computer equipment for refurbishing and distribution or low-cost sale.

¹² The Mayor’s Advisory Council benefited greatly from the important work of the Chicago Wireless Task Force, convened by Chicago Aldermen Edward Burke and Margaret Laurino. Based on the deliberations of its members and several public hearings, the Task Force recommended that the city solicit bids from the private sector to build a broadband wireless infrastructure. The recommendation also stipulated that proposals not only include strategies to ensure availability of high-speed Internet access, but also that such access is affordable, accessible and useful to lower-income families and those living in underserved communities. That recommendation paved the way for the Request for Proposals for the wireless broadband network and the charge to the Mayor’s Advisory Council on Closing the Digital Divide.

- Ensure universal and affordable high-speed Internet access for all Chicago residents, businesses and visitors to the city, paying specific attention to low-income populations and underserved areas.
- Enhance education through the use of technology and improve the interaction among teachers, students and parents.
- Promote job creation, business growth and economic development.
- Improve the efficiency of government service delivery.

As part of the city’s preparation for this effort, Mayor Daley appointed an Advisory Council on Closing the Digital Divide, with members from technology and business, education, city and state government and community-based organizations.¹³ Meeting monthly, the Advisory Council established working groups to examine current conditions and activities, look at best practices and learn about efforts underway in other cities, including San Francisco, Philadelphia and Minneapolis.¹⁴

The Advisory Council held a series of public hearings, solicited responses to a survey and conducted interviews with leaders of community-based organizations, workforce development groups, universities and senior Chicago-area corporate executives. It also asked the city government to take a baseline measure of efforts underway in city departments and sister agencies to encourage the expanded use of technology by residents and businesses. Information from this outreach effort appears throughout this report.

“The City of Chicago should be an aggressive government working on closing the Digital Divide and including people in this new Digital Age. It will create a competitive advantage...help our employee base...and make this city even more of a world-class city.”

— Willie Cade

CEO, COMPUTERS FOR SCHOOLS

Several key themes emerged quite clearly:

- **Digital excellence and digital transformation are critical for the future of cities.** Creating an ongoing broad commitment to digital excellence will drive Chicago’s future prosperity.
- **Online participation is about much more than simply network access.** Network access is only the first step in a comprehensive solution that must include computers, software and training.
- **The digital divide is increasingly crippling** those who are not online, as more daily activities migrate to the Internet. Inclusion, on the other hand, creates broad opportunities.

¹³ The Mayor particularly charged the Advisory Council to make policy and funding recommendations that will help connect and ensure that opportunities are available to all citizens, and to recommend ways to use technology to improve learning in schools and connect working families to broader economic opportunities.

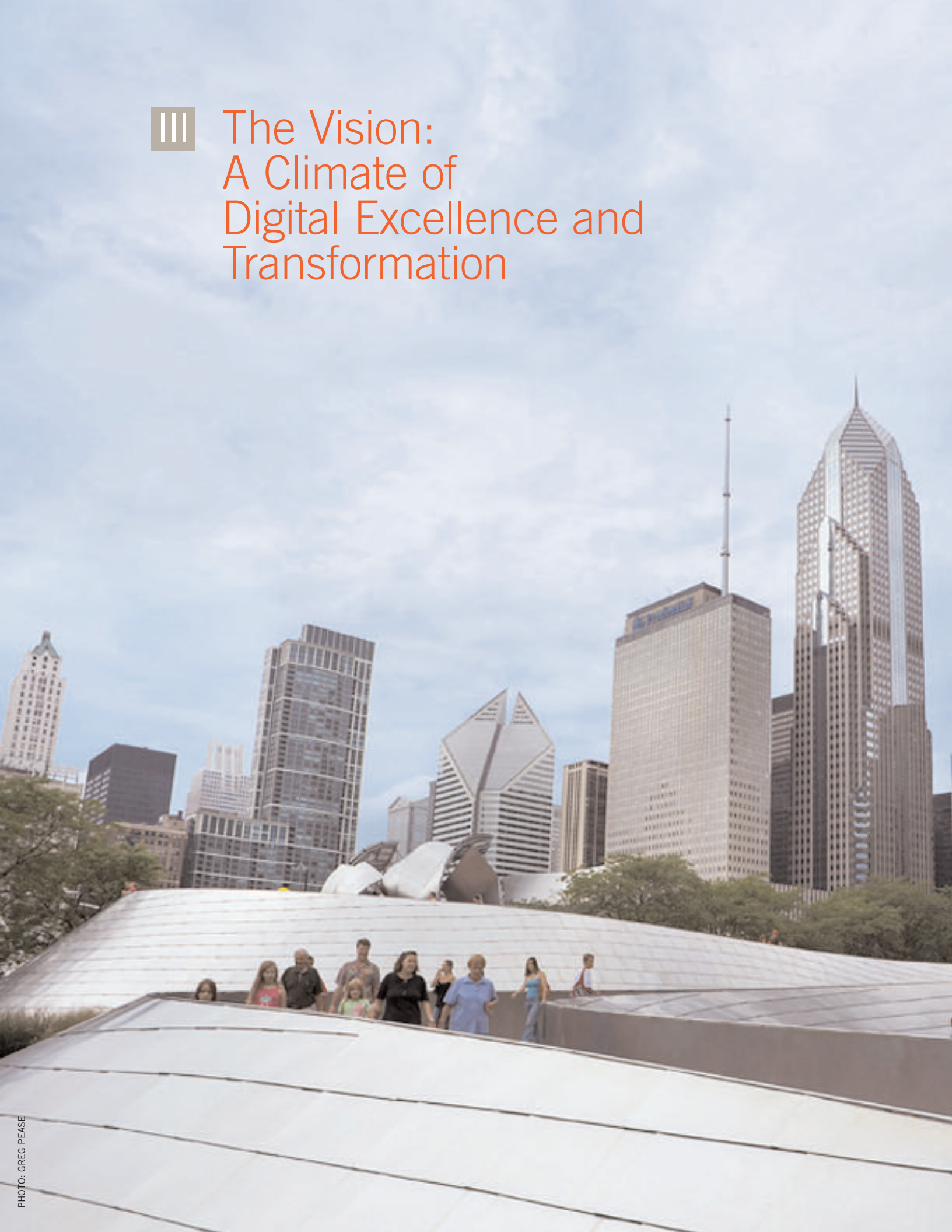
¹⁴ Many initiatives have addressed different aspects of the digital divide nationally and in individual communities. These range from the E-Rate tax on telecommunications, used to ensure that almost 100 percent of U.S. public schools have high-speed Internet connections, to community initiatives funded through the Department of Commerce, to numerous efforts by a wide range of organizations to use the Internet to address the needs of lower-income communities. These initiatives have taken on new urgency in the face of the rapidly advancing pace of technology, especially wireless access technology. Indeed, universal broadband access is again receiving national attention in Congress.

- **Universal participation is important not just to the underserved, but to the city as a whole.**
- **The wireless broadband initiative offers an important moment**, a potential “tipping point,” creating the opportunity to approach closing the digital divide as part of a broader vision, and to galvanize action and resources for digital excellence and transformation.
- **Success is possible only with broad, deep and sustained commitment** and coordinated action by the public, private and nonprofit sectors.

After considering these themes, the Advisory Council developed a vision for a city with no digital divide — a city of digital excellence and transformation — and agreed on recommendations for Chicago to realize this vision.



The Vision: A Climate of Digital Excellence and Transformation



“[Chicago should become] a shining example in the country of how a city can use technology...and become a benchmark of a high-tech city. Not just in developing high-tech, but using it.”

— Padmasree Warrior

CHIEF TECHNOLOGY OFFICER, MOTOROLA

The wireless broadband initiative offers a catalytic opportunity to leverage the city's existing technology and knowledge economy assets to create a qualitatively different level of digital awareness and participation, with transformative effects.

In education, information technology can reengineer how we teach, tailoring instruction to individual needs and making lifelong education far more practical.

In health care, network-based tools that coordinate records and link health providers and patients can dramatically improve quality and reduce costs.

In politics, we are moving to a more interactive arena in which voters communicate constantly with politicians and other voters,¹⁵ and communities create forums to meet their needs.

In economics, specialized market intelligence and access have become critical, allowing rapid transformation of companies and whole industries. Better information and connectivity is transforming community economic development as well, making it possible to efficiently find and invest in the assets and markets of lower-income communities. Emerging online markets also provide lower-income consumers with greater access to goods and services at lower costs.

In neighborhoods, the Internet is leading to expanded local market activity, new capacity to organize and engage in local activities and the formation of new local institutions. Internet-based resources are helping citizens track and respond to problems ranging from neighborhood crime to deteriorated housing.

¹⁵ Indeed, the major contenders from both parties in the 2008 presidential campaign have MySpace pages.

In city, state and federal government services, standing in line is being replaced by transacting online. Costs decline and service improves.

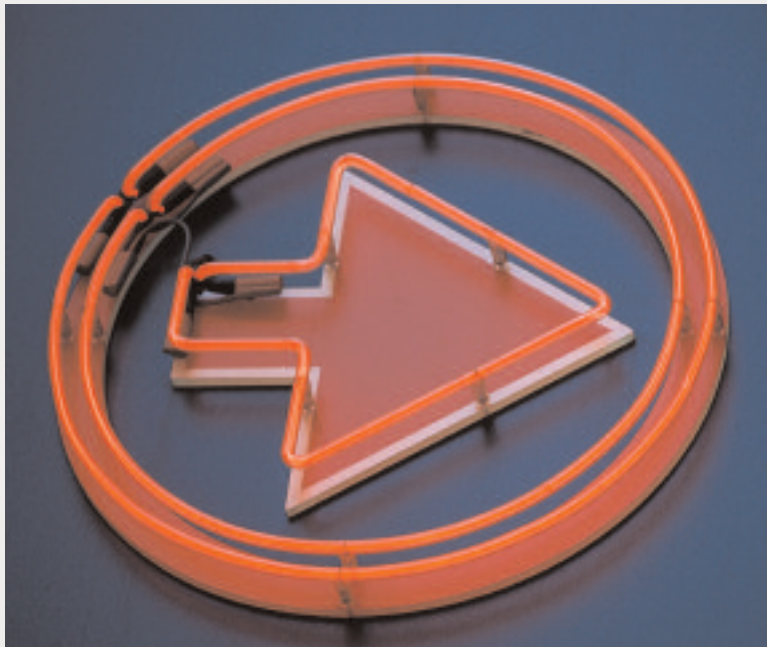
These are just a few examples¹⁶: the transformative effects of digital technologies offer major new opportunities for individuals, entrepreneurs, businesses, communities and government. All of these new opportunities will work far better if everyone is connected. In contrast, an Internet that reaches only three-quarters of Chicago's citizens cannot reach its transformative potential. In this sense, the digital divide is not just about the technology haves and have-nots at the individual level. It is about which economies and societies will thrive in a digitally driven world.

As a result, the initial focus must be on closing the digital divide — achieving nearly universal participation. That means far more than providing limited access or passive, sporadic exposure to websites. Our goal is meaningful, easy and routine participation in all of the activities the Internet can enhance. This transformative level of participation for individuals is digital excellence. Seizing the resulting opportunities to transform systems and markets leads to digital transformation.

Finally, it is important to understand a different, and in some ways transcendent, aspect of the vision, one that informs all of the rest and is less a specific outcome than a state of being. Moving into the knowledge economy and society, making digital excellence and transformation the norm rather than the exception, integrating the new technologies and seeing the new opportunities in all aspects of our lives — all require a profound shift in mind-set, in framework, reflecting how profoundly the underlying mechanisms of society and economy have changed. Understanding the nature and scope of the opportunities, and designing the initiatives to seize them, requires creating an ongoing digital climate. This is not a one-time project. It will require ongoing leadership attention. The goal is a digital climate that encourages young people to educate themselves, educators and parents to invest in their children, adults to increase their skills, businesses to expand and entrepreneurs to pursue their dreams. The first step is to offer the opportunity, tools and support for universal meaningful participation.

¹⁶ Everything from eye clinics to fire prevention training is being provided over the Internet. For example, the first KillerApp Conference (hosted by Fort Wayne, April 30–May 2, 2007) examined areas such as telemedicine, distance learning, eGovernment and consumer applications, as well as specialized impacts on economics, education and culture; see www.killerappexpo.com.

PHOTO: CORBIS



IV Five Drivers of Digital Excellence

Achieving digital excellence requires not just access to the network, but also the hardware, software, training and engagement necessary to make access meaningful and to open the door to real opportunity.¹⁷ The question is not only, “Who can find a network connection at home, at work, in the library or at a community center?” It is also crucial to ask, “What can they do when they are online?”

Achieving digital excellence requires action on five key drivers:

1. **Effective Network Access** that is high-speed, affordable and available everywhere.
2. **Affordable Hardware** with capacity to connect to the Internet and tap into the full range of its visual and other resources.
3. **Suitable Software** that meets the needs of individuals, families, businesses and communities.
4. **Digital Education** that provides the training and technical support for users to become comfortable and proficient.
5. **Evolving Mind-Sets** that value learning, connecting and communicating through technology, and that recognize the business and other opportunities of expanding Internet participation.

This section discusses the guiding principles of the five drivers, and section V provides recommendations for putting the drivers in place.

“If you can’t access the network,
you can’t even get started.”

— Gary Greenberg

EXECUTIVE DIRECTOR,
TEACHING AND RESEARCH INITIATIVES
NORTHWESTERN UNIVERSITY

CNT COMMUNITY WIRELESS NETWORKS

A pilot program pioneered by Chicago’s Center for Neighborhood Technology (www.cnt.org) demonstrates the power of place-based wireless networks. Launched in 2003, CNT’s Wireless Community Network Project established mesh networks (see Glossary) in the North Lawndale and Pilsen neighborhoods in Chicago, and in the town of West Frankfort in southern Illinois. CNT’s assessment of the pilot emphasizes the importance of a comprehensive approach, including Internet access, hardware, technical training and community involvement.

1. EFFECTIVE NETWORK ACCESS

A network connection is the basic requirement for accessing the Internet. Embracing several key principles will ensure that the citywide wireless network genuinely provides high-speed access for everyone:

- Rollout is as universal as possible (and alternative technologies deliver broadband to places the network does not reach).

¹⁷ The digital divide has been a public policy issue for well over a decade. See National Telecommunications and Information Administration, U.S. Department of Commerce. *Falling Through the Net: A Survey of the “Have Nots” in Rural and Urban America*, NTIA, 1995, www.ntia.doc.gov/ntiahome/fallingthru.html. Experience has confirmed that the digital divide is about much more than simply network access. Access does not convert to opportunity without the tools, training and content necessary to make the Internet work for everyone.

- Broadband means sufficiently high speed to support a wide range of applications, including video.
- True broadband speeds are available for all tiers of service.
- Access is affordable, meaning that pricing is reasonable, and subsidized, discounted pricing is provided for lower-income users.

The wireless broadband infrastructure connects to and lies over a land-based network, with a fiber-optic backbone at its core.¹⁸ While the substantial fiber-optic network in the city is beyond the scope of this report, it bears emphasis that the success of the city's wireless broadband initiative in delivering affordable, high-speed Internet access to consumers depends upon an adequate foundation, through fiber-optic network or other technology.

2. AFFORDABLE HARDWARE

A wireless broadband network is useless without adequate hardware. There are essentially two ways that individuals access that hardware.

Computers in the home. This approach of providing low-cost computers to households has many advantages, including ease of access and privacy. The most popular option in surveys and strongly endorsed by the Children's Partnership,¹⁹ this approach also has significant disadvantages, including higher cost for equipment and difficulties in providing support.

Public points of access. Public access computers are less convenient than home computers, less personalized and less private to users. Public points of access (PPAs), however, are easier to support and much less expensive per user. In addition, some new users do better working in groups with similar skill levels (especially where other barriers, such as limited English proficiency, also exist).²⁰ Many different approaches have been tried, including innovative efforts such as the Hole-in-the-Wall Project, and a

HOLE-IN-THE-WALL PROJECT

In 1999, Sugata Mitra, the head of research and development at Indian software company NIIT Ltd., embedded a high-speed touch-screen computer into the wall that separates the company's headquarters from New Delhi's biggest slum. Dr. Mitra was surprised to see how quickly the children mastered navigating the Internet — within hours. He has since installed over 150 such terminals in rural and urban locations throughout India. Each kiosk has a keyboard, touchpad, and Internet access. Dr. Mitra has been asked to bring the kiosks to Cambodia and South Africa as well.

— “A ‘Hole in the Wall’ Helps Educate India.” *Christian Science Monitor*, June 1, 2006.

¹⁸ In this sense, wireless broadband is primarily an “edge” technology, constituting the layer of infrastructure providing connections directly to the end user, primarily individual consumers.

¹⁹ *Measuring Digital Opportunity for America's Children*. Children's Partnership, 2005, p. 8.

²⁰ Lazarus, Wendy, and Mora, Francisco. *Online Content for Low-Income and Underserved Americans: The Digital Divide's New Frontier*. Children's Partnership, 2000, p. 21.

“We need learning kiosks everywhere...”

— Peter Creticos

EXECUTIVE DIRECTOR, INSTITUTE FOR WORK AND THE ECONOMY, N.I.U.

number of PPA efforts are already underway in Chicago, including extensive programs at the Chicago Public Library. The two main approaches must be seen as complementary, not as alternatives.

Recommendations in section V also address meeting the hardware needs of small businesses.

3. SUITABLE SOFTWARE

Hardware does not work without software. A few guiding principles apply for software provided to new users as part of training or bundled with low-cost computers:

- **Equity.** Software must be as functional as — and usually identical to — that used by the general population of computer users. Those trying to cross the digital divide should not be challenged further by second-tier, previous-generation software or “lite” versions of popular programs.
- **Low cost.** Software must be affordable, perhaps packaged with hardware and training, and financed by some of the options described below.

4. DIGITAL EDUCATION

Software does not work without support, at least not for long. Much more broadly, anyone using a computer knows that achieving digital excellence requires ongoing training to enable people to become full, competent participants in the activities of the Internet.²¹

With respect to basic support, key characteristics include:

- **Free or very low cost to the user.** Hidden costs of ownership can quickly sour users on the Internet.
- **24/7.** Users need support when they need it, not tomorrow.
- **Local and online.** Some support must be locally based as users have to know that there are places in their communities where they can get immediate support. As users become more proficient, online support will become more important.

The need for viable support may affect other decisions as well. For example, supporting a single, fixed hardware configuration and a limited though fully functional set of software packages is easier and less expensive.

Digital education should focus initially on digital literacy, including the skills needed to access the Internet, use computers and learn applications. Digital education should also offer opportunities for

²¹ “There are multiple reasons why the rate [of Internet usage] is not higher, including in some cases affordability, particularly for broadband telecommunications. But perhaps the most important factor is lack of digital literacy. To succeed in today’s economy people need basic familiarity and understanding of computer and Web skills,” Atkinson, Robert D., and McKay, Andrew S. *Digital Prosperity: Understanding the Economic Benefits of the Information Technology Revolution*. Information Technology and Innovation Foundation, March 2007, p. 6, www.itif.org.

“We have base-level expectations as far as skills go in our hiring process... [Those who are] on the wrong side of the Digital Divide are extremely disadvantaged in terms of their employment opportunities.”

— Ian Robertson

DEPUTY CHIEF INFORMATION OFFICER, WRIGLEY

continued growth in user skills and capabilities. Instruction should also be available to meet the particular needs of small businesses.

Many organizations currently provide training or wish to do so. A wide variety of training options, including many in local neighborhoods, should provide customers with more choice and impose market discipline on providers.

“First off, we have got to put away the kindergarten concept of the digital divide, which is that you just get to this very basic level of training or get a few skills and a few applications...”

— Michael Miranda

EXECUTIVE DIRECTOR, CTCNET CHICAGO

5. EVOLVING MIND-SETS – SEEING THE OPPORTUNITIES

In the end, it is individuals who will take the steps to become digitally literate, take courses to acquire technical credentials, open new businesses because they see new opportunities and generally become informed participants contributing to a digital community in Chicago. Individuals will have to take responsibility for achieving digital excellence and will drive digital transformation. First, though, they must see the opportunities and benefits.

More than a quarter of all Americans — and Chicagoans — have never connected to the Internet. Many feel that the Internet is not worth the effort, cost and time — often for good reasons:

- **Demanding.** The Internet is overwhelmingly aimed at eighth-grade or higher literacy levels. People with lower literacy find it hard to use.
- **Anglocentric.** The Internet is still — especially for local information uses in Chicago — overwhelmingly English only. Spanish speakers and other non-English-speaking communities often must learn a new medium in a second language.
- **Less relevant.** Providers of Internet-based goods and services have rarely targeted lower-income or lower-access people and markets. As a result, relevant and useful content for these consumers is often not available, despite their clearly expressed interest in information on jobs, apartments, transportation and other critical concerns.

- **Inaccessible.** Much Internet content, as well as the hardware and software needed to access it, is not friendly to those who face physical obstacles to access — for example, users with limited vision. In addition, for elderly users the perceived challenges of adopting new technology can often outweigh any apparent benefits.²²

Changing mind-sets to create universal meaningful participation is a two-way proposition. While individuals must invest the energy to actively participate, providers in the public and private sectors must see the opportunities and develop services that will make the Internet attractive and useful.²³

Many of the recommendations that follow are intended to help change mind-sets, a key first step toward achieving digital excellence.

“The Digital Divide used to mean access to computers, but as the cost has come down, it’s more of ‘here’s the Internet, what do I do with it?’ Having relevant content and knowing how to use the technology is the new divide.”

— Joy Robinson

DIRECTOR, TECHNOLOGY DIGITAL MEDIA CENTER
ILLINOIS INSTITUTE OF TECHNOLOGY

²² Fox, Susannah. *Older Americans and the Internet*. Pew Internet and American Life Project, March 2004. The rapid “graying of America,” of course, heightens the importance of and opportunity for addressing this particular accessibility problem, since improving senior access could dramatically extend networks and market opportunities as the senior population grows.

²³ For example, One Economy, a national leader in addressing the digital divide, has a model multilingual Internet portal — the Beehive — whose style and content are tailored to lower-income users. One Economy has also created customized, local Beehives for several Chicago neighborhoods; see www.thebeehive.org.

DIGITAL PARTICIPATION FOR PEOPLE WITH DISABILITIES*

The Seven Basic Principles of Universal Design

The principles for addressing each of the drivers will have to be specified further and tailored to particular neighborhoods and populations. In that regard, perhaps no group is more affected by the digital divide than people with disabilities. All aspects of the work proposed in this report — from implementation of the Campaign to development of hardware specifications — should reflect both the spirit and requirements of the Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973.

Another way to address this divide is through the application of architecture's universal design principles to technology. In the long run, these principles are designed to benefit all users.

- 1. EQUITABLE.** Useful to people with all sorts of abilities; provides the same means of use for all; does not segregate any user; makes the design safe and appealing to all.
- 2. FLEXIBLE.** Accommodates a wide range of preferences and abilities by providing choice in methods of use, allowing right- or left-handed application, adapting to the user's pace.
- 3. SIMPLE.** Easy to understand and natural to use, regardless of the user's experience, knowledge, language or attention span. Eliminates complexity where possible, uses common cues and provides effective prompting and feedback.
- 4. PERCEPTIBLE INFORMATION.** Communicates necessary information to the user regardless of his or her sensory abilities. Uses different modes to present information; makes them "legible" whether they are words, pictures or shapes; makes the design compatible with other techniques or devices used by people with sensory limitations.
- 5. TOLERANCE FOR ERROR.** Assuming the user will make mistakes, the design minimizes the hazards of consequent accidents. Provides appropriate warnings and fail-safe features and discourages unconscious action in tasks that require vigilance.
- 6. LOW PHYSICAL EFFORT.** Allows the user to maintain a natural body position, requiring only reasonable exertion, and minimizes repetitive actions and sustained physical effort.
- 7. EASY TO APPROACH AND USE.** Accessible to approach, reach and manipulate, regardless of the user's body size, posture or mobility. This means providing a clear line of sight to important elements and placing all components where they can be reached by a seated or standing user, accommodating various hand and grip sizes and making room for assistive devices or people.

*Adapted from Center for Universal Design. "The Principles of Universal Design." Raleigh: North Carolina State University, 1997, www.ncsu.edu/www/ncsu/design/sod5/cud/pubs_p/docs/poster.pdf.

V

Execution: Recommendations for the Public, Private and Nonprofit Sectors



PHOTO: BATEY URBANO

This report proposes fundamental, long-term change to achieve a pervasive climate of digital excellence and transformation. Delivering on this vision requires an ambitious strategy. Making “no little plans,”²⁴ the Mayor’s Advisory Council believes this undertaking requires new, high-level institutional capacity and resources as well as concerted, large-scale efforts by the public, private and nonprofit sectors. The Advisory Council recommends a major Campaign for Digital Excellence and a new institution — the Partnership for a Digital Chicago — to lead it. Recommendations for the Campaign, the Partnership and each of the sectors follow.

A. THE CAMPAIGN FOR DIGITAL EXCELLENCE

Chicago should launch a broad-based, multiyear Campaign for Digital Excellence to create and sustain a digital climate that pays continuing attention to achieving digital excellence and to seizing the transformative economic and social opportunities it creates.

A campaign of this magnitude requires citywide leadership and must thoroughly engage all operations of the private, public and nonprofit sectors. When Mayor Daley envisioned Chicago as the world’s greenest city, greening opportunities and environmental effects became a consideration in every project and activity. Similarly, key leadership of the city’s major institutions — from government, education, health care, industry and nonprofits — must step forward to establish the climate for digital excellence and transformation.

Public agencies, businesses and nonprofit organizations must bring digital awareness and participation to every aspect of their mission and activities. In many cases, digital excellence for institutions entails re-imagining the organization itself, revealing major new opportunities. For the city, it means continuing to rethink how it delivers services, and the kinds of services it offers.

The private sector has the most experience with digital excellence and transformation, as business operations have fundamentally reorganized, within and across industries and around the globe. Private sector leadership must bring this entrepreneurial energy and experience to the Campaign and focus on the emerging business opportunities to serve new markets as access expands in overlooked communities.

As digital excellence takes hold, many economic opportunities will unfold, and the Campaign can become largely self-sustaining. To start, however, the undertaking will require substantial financial support.

²⁴ In the spirit of Daniel Burnham, who shaped Chicago in another age: “Make no little plans: they have no magic to stir men’s blood and probably themselves will not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical plan once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever-growing insistency. Remember that our sons and daughters are going to do things that will stagger us. Let your watchword be order and your beacon, beauty. Think big.” (Attributed to Daniel Burnham, 19th-century American architect, in Moore, Charles. *Daniel H. Burnham: Architect, Planner of Cities*. Houghton Mifflin, 1921.)

Considering its importance to all aspects of Chicago's future, the Campaign should be a top funding priority for local foundations and corporations.

The magnitude of such a major, cross-sectoral campaign and the importance of creating capacity and responsibility to address the drivers of digital excellence call for a substantial new institution to be created.

B. THE PARTNERSHIP FOR A DIGITAL CHICAGO

The city should recruit committed civic leaders to organize and launch the Partnership for a Digital Chicago, a new nonprofit entity, housed at the Chicago Community Trust and led by corporate, philanthropic, city, community and technology industry representatives. Its mission will be to ensure that all of Chicago achieves digital excellence and takes advantage of the social and economic opportunities that arise from universal use of digital technology.

The Partnership should be conceived as a new, high-level, nonprofit institution with overall responsibility for the Campaign for Digital Excellence. With a 10- to 15-member board, it will require its own staff, institutional resources and capabilities. The Partnership will have the following responsibilities:

- Planning and Coordination
- Program Development and Certification
- Broad Outreach and Education
- Portal Development
- Community Coordination
- Financing: The Digital Excellence Trust
- Monitoring and Assessment

Planning and Coordination

The Partnership should take the lead in planning, updating and managing the Campaign and related activities

The Partnership should:

1. **Develop a comprehensive plan for achieving digital excellence**, reflecting the views of the city's diverse constituencies and setting clear and achievable goals for every sector.
2. **Track progress toward the plan's objectives** (see page 36, Monitoring and Assessment).
3. **Link to the community** and make the plan a living document open to suggestions and to ongoing adjustment.
4. **Advise on the anticipated wireless broadband contract**, suggesting future modifications based on experience with early implementation.
5. **Monitor developments elsewhere**, staying abreast of innovations in digital access, technology and applications throughout the world and, where appropriate, encouraging their use in Chicago.
6. **Connect to national and international programs**, exploring partnerships with effective technology education programs outside Chicago.²⁵

²⁵ For example, the Intel-funded Computer Clubhouse program, now in more than 100 cities worldwide; see www.computerclubhouse.org.

Program Development and Certification

The Partnership should coordinate development and delivery of comprehensive programs and activities to address the five drivers of digital excellence — access, hardware, software, education and mind-sets.

The Partnership would have primary responsibility for developing, directly and through its partnerships and funding, core programs to address the digital divide. This entails, among other activities:

1. **Identify key cross-cutting issues** and bring together the right players on the right terms to solve them. (See, for example, the box, “Solving the Hardware Financing Problem,” page 32.)
2. **Set standards** for hardware, software, training and other Campaign activities.
3. **Develop multiple programs** to make hardware, software and support affordable — for example:
 - ◆ *Identify suitable packages of hardware, software and support.*
 - ◆ *Negotiate with vendors of hardware, software and training for program participation, including bulk, discounted pricing and for coordination among multiple vendors in delivering package components.*
 - ◆ *Certify trainers* to provide basic digital literacy training and, in turn, to certify levels of digital competence; ultimately, certify more advanced training programs (in conjunction with and reflecting private sector business experience).
 - ◆ *Create subsidy, financing and voucher systems* that allow eligible households to buy training from certified trainers and to get hardware, software and support packages.
 - ◆ *Establish eligibility standards* for participation by individuals and small businesses, which may differ for different programs.
4. **Facilitate creation of more accessible, relevant content** and applications.
5. **Launch the Digital Excellence Demonstration Communities pilot projects** (see below).
6. **Continually identify new challenges and opportunities, and develop new programs** to address them. In particular, over time, as digital excellence takes hold, identify opportunities and support particular digital transformation activities, such as providing incentives to entrepreneurs to take advantage of emerging digital business opportunities.

Broad Outreach and Education

Using awards, competitions, high-profile spokespersons and role models, and targeting outreach to specific communities, demographic groups and businesses, the Partnership should undertake activities that ensure that everyone understands the importance of digital excellence, and what is required to achieve it.

The Partnership should:

1. **Lead the Campaign for Digital Excellence** as a sustained, citywide effort, involving all sectors and segments of the population. Leading individuals, businesses and institutions should be asked to actively participate in an initial three-year effort.
2. **Conduct a sophisticated public education campaign**, with a distinctive brand and consistent message that communicates the city’s desire that everyone take advantage of digital opportunities,

SOLVING THE HARDWARE FINANCING PROBLEM: Options and Approaches

FINANCING OPTIONS Possible models, separately or in conjunction, include a sinking fund to guarantee loans, a specialized low-interest loan program and use of vouchers and smart cards (see below).

SUBSIDIES Most initiatives have included subsidies for residents who meet certain income specifications, often based on eligibility standards for such government programs as Medicaid. Some cities have provided vendor subsidies to reduce or eliminate costs.

DISCOUNTS Various options exist for turning the collective purchasing power of city residents and other users into discounts from major hardware, software and training vendors.

COMPUTERS ON LOAN Schools and other neighborhood institutions can acquire laptops and establish programs for lending them out.

REFURBISHED COMPUTERS Existing Chicago-area recycling projects could be expanded or replicated.

DISTRIBUTION OPTIONS Options include direct sales by vendors, use of designated retailers who manage subsidy programs or deployment through community-based organizations that have special relationships with potential users. Wireless vendors and large private sector purchasers may also play a role.

and makes a compelling case for investing in digital excellence. Campaign elements might include:

- ◆ *targeted outreach to young people* about the benefits of digital literacy and fluency;
 - ◆ *targeted outreach to small and medium-size businesses* to demonstrate how businesses get access to and benefit from the latest Internet-based practices and business solutions;
 - ◆ *targeted outreach to specific communities*, including racial and ethnic communities, seniors and people with disabilities;
 - ◆ *awards and competitions*, possibly including an annual citywide competition to acknowledge young people's constructive and creative use of digital media, and an annual award program for individuals, nonprofits, government agencies and businesses focused on success in closing the digital divide;
 - ◆ *high-profile appearances*, programming and charitable giving by celebrities and other accomplished individuals;
 - ◆ *neighborhood technology fairs* demonstrating the benefits of digital media use and providing information on training, hardware, software, web resources, safeguards and other issues; and
 - ◆ *corporate-sponsored mobile computer labs* that travel to locations, meetings, festivals and other venues to stimulate interest in digital skills.
- 3. Support and market the new Chicago Connects citywide Internet portal** (described below), encouraging businesses and nonprofits to link to the portal and publishing the portal name and URL on printed material.

Portal Development

The Partnership should develop, support and market Chicago Connects, a citywide portal that will provide access to Internet resources for individuals and businesses, with specific focus on the interests of new users.

Chicago Connects will be a welcoming, accessible online environment with valuable tools and information for new users, including:

1. **A sophisticated Web portal providing free access to digital resources for everyone.** Resources, as further illustrated below, might include online training, a searchable database of open source tools and a directory of nonprofits.
2. **Enhanced, focused, well-organized content.** The portal will select and organize useful content with particular emphasis on local information and services. Service providers will provide content to draw lower-income, non-English speakers and other lower-access communities onto the Internet. This content might include:
 - ◆ *universal digital participation content*, covering sources of subsidized access, computers, software, support and training;
 - ◆ *education offerings*;
 - ◆ *health care information*;
 - ◆ *computer and Internet training*;
 - ◆ *financial services*, including access to banking services tailored to lower-income households;
 - ◆ *job listings*, especially for entry-level jobs;
 - ◆ *job training opportunities*;
 - ◆ *entrepreneurial and small-business services*, including start-up assistance, financing options²⁶ and market development;
 - ◆ *local work support services*, such as child care and food, housing and transportation assistance;
 - ◆ *housing opportunities*, including low-cost or subsidized offerings;
 - ◆ *an online technology mall* for advertising, buying and bartering goods and services;
 - ◆ *information on and links to other specialized programs* that might be of particular interest, such as the IRS Free File program (facilitating free preparation and filing of tax returns);
 - ◆ *direct access and links to streamlined services from local, state and federal governments*; and
 - ◆ *a “Walled Garden of Content,”* which some observers have recommended — and other cities such as Minneapolis have pursued — where a special area walled off from the wider Internet is provided, partly as a security measure and partly to ensure better control of content standards. The Partnership might explore interest in this approach, including in the Digital Excellence Demonstration Communities.²⁷

Many of these applications and much of this content have already been developed, at least in part, and can be adapted or incorporated.

²⁶ See, for example, McDonald, Jay. “Micro-loans Help Smallest, Neediest Startups Grow.” Bankrate.com, www.bankrate.com/brm/news/biz/Capital_borrowing/20001013.asp.

²⁷ However, it is worth noting that to a considerable extent the Internet’s power comes from aggregating large audiences; walled gardens appear designed to limit the size of the audience, which may limit their attractiveness to providers, especially when multilingual content (which is more expensive to produce) is required. Note, also, that the Walled Garden concept appears to conflict with the principle of net neutrality that has also been promoted.

3. **Easily readable.** The portal will be adapted for low-literacy users, possibly building on content and advice from existing projects, such as the Adult Literacy and Technology Network²⁸ or the Ohio Literacy Project.²⁹
4. **Multilingual.** Critical local information will be published in Spanish and other languages.

Once Chicago Connects becomes operational and attracts significant traffic, the portal should become central to the e-commerce strategies of companies across the Chicago area. This, in turn, will boost traffic and generate revenues.

BEYOND PORTALS: THE POWER OF WEB 2.0

Chicago Connects will be important to the success of the digital excellence initiative and to closing the digital divide. It is, however, only the first step. The developments dubbed Web 2.0 change the Web from a powerful provider of information to a multipublisher environment where users become content providers and content managers as well as information consumers.

Web 2.0 can be seen in terms of three core attributes:

- TECHNOLOGIES — the Web becomes a publishing platform for everyone.
- USER-GENERATED/COLLABORATIVE CONTENT — online communities emerge through, for example, social networking sites (MySpace, Facebook), collaborative documents and collections (Wikipedia, digg) and online photo sharing (Flickr, Photobucket).
- NEW BUSINESS MODELS — the Web enables new forms of commerce and sources of revenue, such as Google, eBay and Craigslist.

Web 2.0 has applications to community-oriented websites and services and could support much-improved local services, purchasing clubs and discounts, ratings systems and local entrepreneurial activities, among many other possibilities.

Community Coordination

The Partnership should ensure that it is connected to, and its activities are informed by, business, community, educational and civic organizations that share its commitment to digital excellence.

The Partnership should:

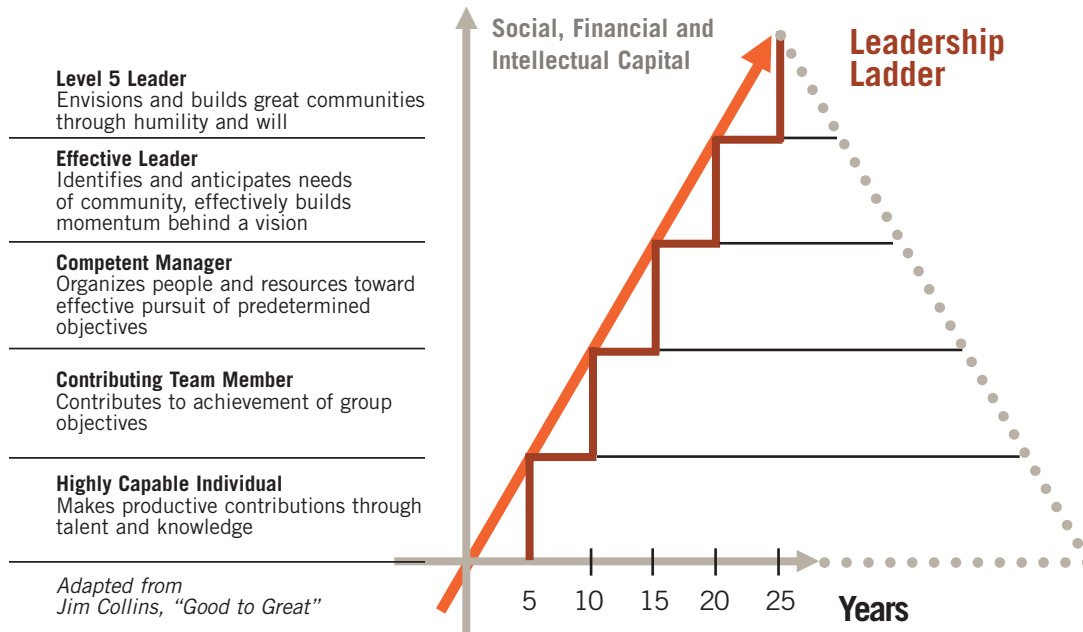
1. **Create a Community Advisory Panel** to ensure sustained input.
2. **Seek input and engagement** from community organizations, including those representing the underserved, to inform and improve the Campaign for Digital Excellence.
3. **Establish formal links with a wide range of other organizations**, including the Mayor's Council of Technology Advisors, the Chicagoland Chamber of Commerce, Chicago Public Schools, CTCNet members and local development, social and religious institutions.

²⁸ The Adult Literacy and Technology Network, www.altn.org/techtraining/, which maintains an extensive literacy training collection.

²⁹ Ohio Literacy Project, <http://literacy.kent.edu/Oasis/siteindex.html>.

i.c. stars

Chicago nonprofit i.c. stars (www.icstars.org) builds community leadership capacity in Chicago neighborhoods with IT career training programs for youth with limited access to educational opportunities and job networks. i.c. stars runs a paid internship program, working with nonprofit and for-profit partners, to teach Web design, business planning and database management using real-life projects. Graduates of the i.c. stars internship program are placed in six-month IT consulting assignments at Chicago corporations. In addition, i.c. stars and DePaul University have recently entered into a special admission partnership to place i.c. stars graduates in bachelor's degree programs in DePaul's School for New Learning and DePaul CTI (computer science/IT).



i.c. stars' investment in human capital benefits not only the individuals who participate in its programs, but the city as a whole — employers that depend on an IT-savvy workforce; community groups and households that benefit from the expertise of the interns; and all of us who live in a city where dense IT-enabled networks create vital, connected neighborhoods and thriving commerce.

4. Support and expand existing efforts to build local community leadership on digital issues.³⁰

Financing: The Digital Excellence Trust

The Partnership should create The Digital Excellence Trust, a donor-advised fund at the Chicago Community Trust. It should solicit corporate and philanthropic support for the Campaign, Partnership operations and the demonstration communities and play a leading role in developing and deploying financial programs and resources.

³⁰ Illustrative examples of these efforts appear throughout this report.

The Partnership should:

1. **Establish the Digital Excellence Trust** as a donor-advised fund administered by the Chicago Community Trust and directed by the Partnership, to receive funds from the wireless broadband network vendor, corporate and philanthropic donors and from Partnership-generated revenues.
2. **Raise funds and in-kind services from corporations, individuals and philanthropies** to support all aspects of the Campaign.
3. **Explore raising revenues from Chicago Connects portal advertising** and from other business opportunities that will arise as digital participation expands.
4. **Develop initiatives for funding the hardware, software and support components** of the Campaign for Digital Excellence. These might include:
 - ◆ recruiting banks and other financial institutions to provide low-interest loans;
 - ◆ recruiting foundations to support loan loss reserves or other subsidy programs for computer purchases, software and training;
 - ◆ recruiting corporations to donate computers and related equipment for refurbishment and low-cost distribution and sale; and
 - ◆ pioneering innovative programs, such as:
 - a **“stored-value” card** to help people purchase wireless plans and online goods and services as well as hardware, software and training³¹, and
 - **voucher-based solutions**, where vouchers are created for those currently offline to help obtain hardware, software and training services, thereby providing customers more choice and vendors more accountability.
5. **Provide resources for program development and special projects, such as:**
 - ◆ expanding the recent grant program offered by the city for nonprofit organizations for “community technology programming”³²;
 - ◆ developing a grant program for “transformative initiatives” — pilot projects that demonstrate potential citywide impact;
 - ◆ funding the Digital Excellence Demonstration Communities;
 - ◆ promoting development of Web applications for lower-access communities; and
 - ◆ funding evaluation and assessment activities.

Monitoring and Assessment

By monitoring the progress of the Campaign and the impact on digital excellence of the activities of all sectors, the Partnership should become the source of definitive data and assessment on digital access, opportunity and excellence in Chicago, which should be made public through an annual progress report.

The Partnership should:

1. **Adopt measurable goals** that reflect the vision for Chicago without a digital divide, set a timetable for achieving those goals and establish a series of interim indicators of progress.
2. Contract with experts in this field to **establish baseline measures** of digital access and opportunity for each community, and to conduct periodic surveys to assess progress.

³¹ Instead of, or in addition to, developing new cards, consideration should be given to using existing smart card infrastructures, ranging from the Chicago Transit Authority to food stamp card systems.

³² Currently, a total of \$250,000 is available, with a maximum grant of \$50,000 per organization.

3. Conduct and publish an **annual review** of progress toward digital excellence goals.
4. Establish systems for **monitoring the scope and quality of all aspects of implementation**, ranging from tracking the reach and quality of the anticipated wireless broadband network to audits of programs for access.
5. **Make data publicly available** wherever possible, including relevant data from city departments and other organizations.

C. THE PUBLIC SECTOR

The public sector should lead by example, demonstrating its commitment to a universal digital excellence that will place Chicago at the center of the global knowledge economy.

For current purposes, the public sector includes in particular the city government and all of its departments and agencies, as well as other key public agencies such as the Chicago Public Schools (CPS), City Colleges of Chicago, Chicago Housing Authority and Chicago Park District. Some of these are singled out for more detailed discussion because of the special alignment of their goals and capacities with the goals of the Campaign.

The City of Chicago should lead by example and urge all institutions in the public sector to commit to digital excellence. This means:

1. All public agencies should develop and deliver to the Mayor annual **Digital Leadership Plans** that demonstrate how they will use their activities and resources to help promote universal digital participation, and how they will use the Internet and other digital technologies to transform their activities.
2. All agencies should **participate fully** in the specific initiatives described below.
3. All agencies should, when invited, **cooperate fully and completely with the Partnership**, including sending senior staff to work with the organization.

THE CITY OF CHICAGO

The Campaign for Digital Excellence must be driven to a considerable extent by the vision and energy of the Mayor and his staff. Also, through its departments, the city has opportunities to promote and address the five drivers of digital excellence. In addition, it can move critical services and information — especially for underserved populations — online, thereby saving money and increasing access.

To meet these objectives, the city will need to act in six areas: coordination, vendor contract, government digital climate, eGovernment, outreach and support for the Digital Excellence Trust.

COORDINATION

The city should make the organizational changes necessary to launch and help sustain the Campaign for Digital Excellence, including appointing a top-level Digital Excellence Officer responsible for ensuring the city's sustained commitment and attention to the goals of digital excellence.

“Create a highly strategic approach for closing the digital divide... I would love to see an office of synergy around this issue, with one person who is totally accountable for closing the digital divide.”

— Cathy Brune

SENIOR VP AND CIO, ALLSTATE

The city should take steps to launch and sustain the Campaign for Digital Excellence.

1. The Mayor should appoint a Digital Excellence Officer, working out of the Mayor’s Office, to lead and be held accountable for the city’s contribution to digital excellence, to coordinate city government digital excellence functions and assure support for the Partnership for a Digital Chicago. This person will work closely with the city’s chief information officer and the executive director of the Partnership.³³
2. The city should support the creation of the Partnership for a Digital Chicago, bringing together senior stakeholders from all sectors of the city.
3. The city should challenge other government agencies and elected officials to create annual plans for participation in the Campaign.

VENDOR CONTRACT

The city should negotiate an agreement with the primary vendor that provides the necessary conditions for universal access — sufficient speed, bandwidth and coverage at an affordable price.

Although specific recommendations with respect to the vendor contract are outside the purview of the Advisory Council, a few guiding principles may apply:

1. This agreement should provide high-speed, affordable access. Broadband should be available to everyone, and subsidized access should not mean slow access.
2. Affordability will depend partly on targeted discounts and revenue streams from the vendor; the city should negotiate the maximum cash contribution and in-kind services from the vendor consistent with the preferred business model for the overall contract.
3. The wireless broadband network should accommodate and encourage neighborhood information portals.

GOVERNMENT DIGITAL CLIMATE

³³ The city’s Digital Excellence Officer will be responsible for leveraging the influence of the Mayor’s Office to create and implement policies that encourage digital excellence and will serve as a link between the Mayor and the private companies, nonprofit organizations and academic institutions participating in the Campaign. The city CIO will remain responsible for city technology leadership; creating a citywide strategy for integrating technology into government service delivery; and ensuring that city departments are equipped with the latest technology solutions to maximize the efficiency of government operations. The executive director of the Partnership will be Chicago’s primary advocate for the five drivers of digital excellence, as well as all of the other work of the Partnership, working closely with government, business and nonprofit institutions and leaders.

All city departments should develop and deliver to the Digital Excellence Officer annual Digital Leadership Plans that identify how their activities and resources will help promote universal digital access and excellence, and how they will use the Internet and other digital technologies to transform their activities.

These plans will demonstrate how departments will use their business processes, activities and resources to promote digital excellence. For example:

1. **requiring, to the extent feasible, that all new developments** or significant renovations that use city subsidies or resources or require city approvals **be high-speed Internet ready**;
2. **requiring that every major renovation** of a city-owned or -leased facility **include broadband accessibility**; and
3. **making tax-increment financing (TIF) proceeds available for digital opportunity activities.**³⁴

Similar opportunities should exist in nearly every department, from business support services emphasizing digital business opportunities, to purchasing and contracting functions encouraging use of digital technologies, to the recommendations for the Chicago Public Library below.

eGOVERNMENT

The city should move all possible services and information online, ensuring that all citizens can easily access services, and should consider discounting the cost of services accessed over the Internet. The city should also aspire to expand participatory democracy by enabling and encouraging resident feedback and debate on key issues.

Although Chicago has already made considerable progress with respect to eGovernment, making city services fully accessible to everyone online will be a significant task.

The departments should:

- **expand eGovernment**, with a particular focus on making accessible online the services needed by underserved populations, including lower-income people, those with poor reading skills, people with disabilities, seniors and the city's limited-English-speaking population;
- **provide financial incentives to encourage residents to access city services over the Internet**, such

MONTGOMERY COUNTY, MARYLAND

Recently recognized as the top county website by *Computerworld*, attracting 550,000 hits annually, www.montgomerycountymd.gov has more than 100 online interactive services, including the county's business incubator, minority-owned business opportunities and access to an extensive menu of social services.

³⁴ Most such activities should be eligible currently under provisions allowing use of TIF funds for items ranging from building rehabilitation (including, presumably, broadband infrastructure) to job retraining and career education (including, presumably, digital literacy). Other items, such as use for development of community portals, may require amendment of the authorizing legislation.

DEPARTMENT OF CONSTRUCTION AND PERMITS (DCAP)

- DCAP has installed computer kiosks at City Hall and at four neighborhood offices to reduce clerical load and expedite permits processing.
- DCAP shifted its data input efforts from the department level to the user level, known as “Forward Sourcing.” nMost DCAP applications are now online.
- Revenues have increased due to efficiencies gained through technology.

Source: Digital Divide Departmental Survey: Construction and Permits (DCAP).

ACCESS NYC

Access NYC is a Web interface that allows users to enter information anonymously about themselves, and then suggests human services programs for which they might be eligible, including Medicaid, food stamps, rent exemptions, Head Start and others.

The site is available in English, Spanish, Chinese, Korean, Russian, Arabic and Haitian Creole. In the second phase, the city plans to incorporate more programs and allow users to submit applications electronically.

Source: “Mayor Unveils Online Benefits Tool,” *New York Times*. October 19, 2006.

eGOVERNMENT AT THE CITY OF CHICAGO

Although there is more to be done, the City of Chicago has been making major strides in eGovernment, with significant efforts underway to increase the use of advanced information and communications technologies to make access to government services easier (“eServices”); improve the efficiency of government (“eManagement”); and strengthen connections between citizens and their elected officials (“eDemocracy”).

Through the city’s Internet portal, residents can access a variety of eServices online, including applying for municipal jobs, reporting problems or requesting services. Businesses can pay taxes, submit license forms and renewals, determine building permit status and confirm scheduled restaurant inspections. Building owners can use the city’s website to apply for and receive numerous permits, including for water, heater or garage construction.

With respect to eManagement, the city has a customer relationship management system serving as a central nervous system for the city’s front-line 3-1-1 center; a standardized enterprise case management system allowing employees in all human capital departments to share information about individuals and families; and a citywide system integrating data and processes to standardize such functions as billing and purchasing across departments.

Finally, Chicago is using advanced technologies to increase access and transparency between leaders and their constituents through eDemocracy, ranging from making the City Council’s meeting agendas and minutes available online to providing online information about everything from city contractors to restaurant health inspection results.

as discounts for various services handled online;

- **promote availability and use of kiosks** at City Hall and in neighborhood offices by expanding available applications and perhaps through provision of tutors at key sites;
- **meet the needs of small business** at the city level and in the neighborhoods. The city should ensure that all necessary licenses, permits and paperwork can be completed online through its portal³⁵; and
- **experiment with ways of soliciting more input and supporting discussion and debate on key city issues** through its website and perhaps through the Chicago Connects portal.

OUTREACH AND DIGITAL EVANGELISM

All city government departments should encourage a climate of digital excellence and transformation in Chicago by promoting the Campaign in their communications and cross-marketing where appropriate with the Chicago Connects portal and the Digital Excellence Demonstration Communities.

1. **Cross-marketing.** The name of the portal — Chicago Connects — and its URL should be included in everything the city distributes, in print and online. The city also should seek opportunities to market and provide its services through the portal as well as in the Digital Excellence Demonstration Communities.
2. **Test marketing of digital services.** The Digital Excellence Demonstration Communities will allow the city to test improvements to its online services and information, providing rapid feedback and opportunities for direct interaction with users.

SUPPORT FOR THE DIGITAL EXCELLENCE TRUST

The city should ensure, to the extent consistent with optimizing the overall contract, that the Digital Excellence Trust receives an initial allocation of funds from the business arrangement with the successful wireless broadband network vendor and an annual allocation over the life of the contract.

The Partnership for a Digital Chicago will oversee a new Digital Excellence Trust. A key part of its funding might be provided through the new wireless agreement, which may include financing for digital excellence initiatives. The city should pursue both an initial advance, to get early projects operational, and a substantial annual fee related to revenues, insofar as this is compatible with the best possible business arrangement between the city and the chosen vendor.³⁶ In addition, the city should support the Partnership's efforts to raise money from corporate, individual and philanthropic sources; to generate revenues through advertising and services provided by the Chicago Connects portal; and to seek other business opportunities.

THE CHICAGO PUBLIC LIBRARY

³⁵ See www.cityofchicago.org/businessaffairs.

³⁶ In Minneapolis, for example, a 10-year contract with US Internet to build a citywide Wi-Fi network included an initial contribution of \$500,000, plus a minimum 5 percent of net profits annually, to the city's Digital Inclusion Fund; see www.ci.minneapolis.mn.us/wirelessminneapolis/commbenefits_wireless.asp.

Already a leader in addressing the digital divide, the Chicago Public Library should continue to expand its historic role as an information provider and become a key provider of digital access, training and content.

The Chicago Public Library (CPL), a department of the City of Chicago, is already actively addressing the digital divide. The library currently provides free desktop computer access to the Internet and free wireless broadband access at each of its 79 branch libraries.³⁷ Thousands of library users access more than 75 online research databases daily through the library's website³⁸ free of charge.

Even so, the library recognizes that it can do more. In its current five-year strategic plan, the library has set goals — which anticipate the Campaign for Digital Excellence — to provide more access opportunities and training for the public.³⁹ To continue its leadership role, the library should:

1. **implement the technology goals** set forth in *CPL 2010*, the library's five-year strategic plan (which include some of the following items);
2. **continue to expand training** for librarians in Internet-related technologies;
3. **continue to expand Internet access and training** at libraries by providing more computers and support, including delivering digital excellence training programs⁴⁰;
4. **ensure that a library representative sits** on the board of the Partnership for a Digital Chicago and participates in the Campaign for Digital Excellence; and
5. **provide information** on library digital excellence activities to the Partnership for inclusion in its annual report.

THE CHICAGO PUBLIC SCHOOLS

“The Digital Divide used to be the lack of computers in the classroom. What we’ve found once they started hooking up computers in these schools is that teachers don’t know what to do with it. There’s a lot of fear and trepidation.”

— Matt Howard

DIRECTOR, CHICAGO MEDIA INITIATIVES GROUP, UNIVERSITY OF CHICAGO

³⁷ The library began providing free public access to the Internet in 1996 and free public wireless broadband access in every branch library building in 2004. In 2006, the library provided more than 3.5 million free, one-hour Internet sessions on its 1,800 desktop computers in the central and branch libraries.

³⁸ The library's website, www.chicagopubliclibrary.org, received 27 million hits per month in 2006, and its free online databases contain thousands of full-text newspapers from around the world and journals in history, genealogy, business, education, health and medicine, trade and industry, social sciences, science and test preparation. A new \$10 million CPL website, online catalog, online circulation system and integrated financial management system, known as Find It Chicago, will be unveiled in 2007.

³⁹ Goals 4–7 of CPL 2010 focus on technology: Goal 4: Expand online information access to patrons with balanced and reduced waiting times across all CPL locations; Goal 5: Increase resources and staff development to ensure every CPL location has the capabilities to assist patrons with their information needs; Goal 6: Provide patrons with access to online resources in an easy-to-navigate virtual library; Goal 7: Offer library patrons at least one quarterly class in every CPL location designed to best serve their online information needs. The entire CPL 2010 plan can be viewed at www.chicagopubliclibrary.org.

⁴⁰ In 27 libraries, the library currently offers public instruction in how to navigate the Internet and how to use the library's research databases effectively. The library just announced a \$1 million gift to create the Computer Smarts Program, to help fund additional “CyberNavigators” to provide computer education; see <http://publicbroadcasting.net/chicago/news/content/1047580.html>. As part of its goals in CPL 2010, the library has challenged itself to establish a formal training curriculum for technology in 2007. The library plans to offer regular technology classes for the public in every library by 2010.

“A majority of states have standards for what students should know about technology. But just four states actually test students’ knowledge of technology. Only 21 states require teachers to demonstrate technological proficiency before receiving an initial license, either by completing coursework, passing a test, or both.”

— Christopher Swanson

“TRACKING U.S. TRENDS,” *EDUCATION WEEK*, MAY 2006

The Chicago Public Schools (CPS) should ensure that all students are fully digitally literate by the time they graduate from high school.

This ambitious goal will require substantial actions in the classroom, in the CPS system and in CPS links to the community. Among them, the school system should set a timetable for the following:

1. ***Implement digital literacy and learning skills*** in all aspects of student learning, curriculum, assessment and creative expression, and adopt clear criteria for 21st-century technology skills⁴¹ for all CPS students in grades 3, 6, 8, 10 and 12 and graduation requirements for students at 8th and 12th grade.
2. ***Implement digital literacy and learning skills*** in all aspects of teaching, including a plan for ensuring that new and current teachers meet standards for 21st-century technology.
3. ***Create a CPS-approved position and recruit highly qualified educational technology integration specialists*** to help principals and teachers incorporate 21st-century digital literacy and learning skills in all student learning environments.
4. ***Solicit proposals for schools under Renaissance 2010*** that would incorporate 21st-century digital literacy and technology in all aspects of teaching, student learning, curriculum, assessment, student expression and interaction and parent and community communication.
5. ***In addition, CPS should commit to making the schools a key part of community education and, in particular, to supporting initiatives to close the digital divide***, including:
 - ♦ *Develop new Internet access points at local schools*, using underused computer labs after school hours in schools with extended-day and after-hours programs. The 257 schools in the Catholic school system also offer possibilities in this area.⁴²
 - ♦ *Use community service requirements for teenagers* to tap their digital expertise and provide a substantial pool of skilled volunteers.
6. ***Add information about student and teacher digital literacy to individual school scorecards.***

⁴¹ A major component of the National Education Technology Standards for Students is development of a general set of profiles describing technology-literate students at key developmental points in their pre-college education. These profiles reflect the underlying assumption that all students should have the opportunity to develop 21st-century technology skills that support learning, personal productivity, decision making and daily life. These profiles and associated standards provide a framework for preparing students to be lifelong learners who make informed decisions about the role of technology in their lives.

⁴² See “Profile of Catholic Schools of the Archdiocese of Chicago in the City of Chicago.” Archdiocese of Chicago, 2006.

“We offer continuing education courses at very affordable rates to get people computer skills refreshment and enhancement. Those classes are very well attended.”

— John Dozier

EXECUTIVE VICE CHANCELLOR OF INFORMATION TECHNOLOGY,
CITY COLLEGES OF CHICAGO

tech37

tech37 is a leader in providing opportunities for high school students, particularly from underserved communities, to build advanced technology skills. tech37 works with leading technology firms, public agencies, independent technology professionals and community-based organizations to introduce youth to technology through hands-on programs. Teens are actively engaged in real-world situations and applications, designing websites, producing digital videos, refurbishing computer hardware, desktop publishing and building robots. For example, in a number of apprenticeships, teens work with professionals to learn the technical skills necessary to troubleshoot computer problems and how to interact with clients who need information technology support. In others, teens are introduced to concepts and techniques in graphic design and flash animation to create an interactive CD-ROM. A portion of their time is dedicated to learning specific software such as Microsoft Office Suite. Some of the technology apprenticeships currently being offered include Computer-Aided Design (CAD), Digital Video Production, Audio CD Production, Audio Engineering, Graphic Design and Robotics (www.afterschoolmatters.org/programs/tech37/).

“One of the things we’ve done is our Collaboratory Project ...We have built a Web infrastructure so that students and teachers throughout Chicago and the state of Illinois can come share information, and use technology to build a broader view of education into their course work.”

— Patricia Todus

ASSOCIATE VP, NORTHWESTERN UNIVERSITY

7. **Provide information** on CPS digital excellence activities *to the Partnership for inclusion in its annual report.*

D. COLLEGES AND UNIVERSITIES

Colleges and universities, including particularly the City Colleges of Chicago, should move rapidly toward sharing, coordinating and expanding their digital excellence activities.

College leaders strongly expressed to the Advisory Council the importance of digital excellence and of their own roles. Many have undertaken significant initiatives, broadly clustering in four areas: (1) providing access to Internet-enabled computers; (2) offering inexpensive continuing education classes; (3) developing content for teachers; and (4) sending students and faculty out to work in the community.

The Advisory Council recognizes that every college and university will best understand its own circumstances and capabilities, but the Council nonetheless urges all area institutions to expand and better coordinate their efforts. The colleges and universities can and must play a much broader role in efforts to achieve digital excellence, including:

1. **Commit to full participation** in the Campaign for Digital Excellence.
2. **Develop a Coordinating Council of Colleges and Universities on Digital Excellence**, which will provide a forum and structure through which initiatives can be coordinated, and through which the institutions can link to Partnership and city activities.
3. **Develop an updatable, cross-institution, online inventory** of digital excellence activities.
4. **Participate in the Digital Excellence Demonstration Communities** through activities ranging from training to assessment.
5. **Develop a strategic plan** for supporting digital excellence in individual institutions and in the community.
6. **Provide information to the Partnership for inclusion in its annual report.**
7. **Experiment with individual programs**, especially those that provide a pathway to advanced skills. Possibilities include:
 - ♦ providing programs for tech skills-based digital fluency training at all levels (nondegree; professional certification; and two- and four-year degree programs);
 - ♦ using undergraduate experiential learning requirements to send technology students to help smaller or less digitally sophisticated businesses develop websites and eCommerce;
 - ♦ encouraging college students to go into the community to help people learn basic computer skills and develop websites⁴³; and
 - ♦ providing computer and Internet access, as City Colleges of Chicago does, through free access to computer labs to anyone in the community.⁴⁴

E. THE PRIVATE SECTOR

⁴³ See Market Strategy Group. "Perspectives on Closing the Digital Divide: Views from Leaders of Chicago's Post-Secondary Academic Institutions," February 2006.

⁴⁴ Ibid.

“I want to make sure that LaSalle Bank has customers forever in the Chicagoland area...and participating in efforts to close the Digital Divide is the best thing we can do... It’s not just for brownie points.”

— Louis Rosenthal

EXECUTIVE VP, LASALLE BANK

The private sector has an enormous stake in digital excellence — to improve the quality of the labor force, expand markets and strengthen the economy overall. With the unique economics of the Internet, attractive opportunities arise to add new customers from untapped markets with minimal marginal costs.

Companies, industry associations and executive leadership organizations should make the Campaign for Digital Excellence and the five drivers of change a top priority, worthy of senior management time and company and other resources.

Companies and industry and civic organizations, such as the Civic Committee of the Commercial Club of Chicago, the Chicagoland Chamber of Commerce, the Mayor’s Council of Technology Advisors, and the Chicago Workforce Board, can play a wide range of roles in the Campaign for Digital Excellence.

Hardware and Software

The private sector should lead a new Partnership for a Digital Chicago Task Force on Hardware and Software to address large-scale donations of equipment, competition for vendor arrangements and financing.

1. **Discount supplier.** Private sector firms should compete to become discount vendors of hardware and software associated with the Partnership and the Campaign for Digital Excellence. In addition, the Partnership should explore coordinating with federal, state or city agencies that make large purchases of hardware and software.
2. **Financing.** Banks, credit unions and other financial institutions should develop ways to

“\$100 LAPTOP”

MIT’s Media Lab is designing a “\$100 laptop,” which it claims will be able to do anything a standard laptop can except store large amounts of data. The laptop, which debuted at the Consumer Electronics Show in January 2007, runs on a modified version of Linux. It has very low power consumption requirements, and each laptop will be able to function as a node in a mesh network. OLPC (One Laptop per Child project) is targeting the laptop at governments of developing nations for distribution to school-age children and hopes to begin distribution this summer; see www.Laptop.org.

COMPUTER RECYCLING WITH EX-OFFENDERS

In a collaboration between the Mayor's Office of Workforce Development and the Department of the Environment, the City of Chicago has used corporate donations to teach ex-offenders technology skills through the Electronics Training Program at the city's Household Chemical and Computer Recycling Center. In addition to its environmental benefits, the program provides ex-offenders with hands-on experience in computer repair and refurbishment and with the opportunity to transition into permanent jobs when they complete their training. The computers refurbished through the program are distributed to schools, nonprofits and low-income families.

finance hardware, software and training, including loans, stored value cards and other mechanisms.

- 3. Equipment donations.** Corporations should commit to large-scale donation of used computers and related equipment to ensure maximum availability of low-cost, refurbished equipment.
- 4. Internet access.** Corporations should take the lead in testing the deployment of public access computers in unconventional settings such as grocery stores and banks.

Digital Education

Companies with information technology (IT) expertise or that provide IT training for staff should support digital education in Chicago neighborhoods through partnerships with community technology centers and local schools as well as internship and apprenticeship programs.

Specific opportunities include:

- 1. neighborhood help desks,** where companies with IT expertise might organize volunteer staff to be available locally and to respond to calls and e-mails routed from a central number or address;
- 2. school partnerships,** through which corporate chief information officers support activities throughout the school year, including, for example, participation in Principal for a Day and ongoing technology initiatives in specific schools;
- 3. technology apprenticeship programs,** in which leading companies work together to create technology apprenticeship programs to train perhaps 1,000 students annually from underserved Chicago neighborhoods;
- 4. partnerships with CTCs,** through which companies work with community-based technology training centers, providing volunteers, funding, assistance with program development and delivery and other resources; and
- 5. internships and summer employment,** through which corporations make job opportunities that use digital skills available to trained and qualified young people.

In addition, digital education extends beyond digital literacy to advanced technical skills. Leading corpo-

rate and IT executives should coordinate with academic institutions to assure that students are being prepared adequately for technology jobs at all levels.⁴⁵

Mind-Sets

Leading companies should highlight and promote the digital age's new opportunities by offering competitions and awards, supporting advertising and other activities of the Campaign for Digital Excellence and providing goods and services to emerging digital markets.

With digital excellence as a top priority for 2007–2010, corporate entities and organizations might undertake the following activities:

1. Establish **Digital Awareness Day**, during which a group of chief information officers brings a successful IT executive into every school to talk about Chicago career opportunities in IT.
2. Develop an **HR Executive Planning Forum** focusing on promoting digital excellence, including, for example, working with training institutions to identify and develop curricula to address skill and training needs in IT.
3. Establish **new competitions and awards**, such as a Tech Heroes campaign, honoring people who have demonstrated leadership in bringing technology to Chicago neighborhoods, or an excellence in digital literacy competition, perhaps in conjunction with YouTube.
4. Develop **outreach and products for emerging markets**, including advertising on the Chicago Connects Web portal.
5. Institute **neighborhood outreach** by recruiting leaders and celebrities, including Chicago sports stars, to participate in special outreach and education events as part of the Campaign for Digital Excellence.
6. Design, develop and implement the **advertising and awareness efforts** that are part of the Campaign for Digital Excellence.

Economic Transformation

In addition to helping deliver the drivers of digital excellence, the private sector should identify and support emerging economic opportunities, including in particular for small businesses.

As digital excellence leads to transformation in the economic system, the private sector should take the lead role in supporting digital entrepreneurship and investing in new markets. Possible examples include:

1. **Partnering** with the varied small-business assistance agencies and with individual companies **to support new Web-based business opportunities**. These might range from entrepreneurs offering specialized products and services targeted to lower-income consumers and non-native English speakers to neighborhood businesses moving online to market their goods and services throughout the region or around the globe.
2. **Participating in new, specialized knowledge networks** and collaboratives to generate and

⁴⁵ Currently, both the Mayor's Council of Technology Advisors and the Illinois Information Technology Association are considering this issue.

DIGITAL TRANSFORMATION AND CHICAGO'S SMALL BUSINESSES

A Special Set of Recommendations

Often overlooked in public discussion about the digital divide is that the same challenges and opportunities that apply to households without Internet access or digital skills apply to many small businesses and entrepreneurs as well. While Chicago has some of the most vibrant broadband networks in the world, some neighborhoods and job centers do not have the necessary infrastructure for high-speed access, and many small businesses do not have the hardware, software, training and mind-set to leverage the digital opportunities.

Seizing the digital opportunities to foster entrepreneurial activity and small-business growth in Chicago might entail:

- Ensuring high-speed broadband access in key business areas, including industrial corridors, perhaps using Tax Increment Financing and other mechanisms to finance necessary network improvements, including in some instances fiber-optic backbone.
- Surveying small-business digital needs and delivering appropriate information and training programs, largely through existing organizations, such as the Chicagoland Entrepreneurial Center, and perhaps through mentoring programs with chief information officers of leading corporations.
- Extending the plans to identify and negotiate discounts for appropriate hardware and software packages to packages for small businesses as well, including encouraging major technology corporations with small-business initiatives to donate or provide subsidized hardware, software and other services to disadvantaged small businesses.
- Expanding digital programming and training specific to small-business activities, including interactive Web marketing techniques as well as eCommerce applications required by corporate and government contractors, such as procurement (including perhaps an MWBE site and database), supply-chain management and technology-based marketing.
- Encouraging the development of community small-business Web portals that will allow small businesses and entrepreneurs to develop a Web presence. This can be done in conjunction with local chambers of commerce and community-based organizations. (See section VI, Bringing it All Together: Digital Excellence Demonstration Communities, as well.)
- Making sure that small businesses are included as a key constituency throughout the Campaign with recognition awards and other activities focused on creating a climate of digital excellence and transformation.

Ensuring that entrepreneurs are able to take full advantage of advances in IT will cement Chicago's position as a center of innovation and sustainer of small-business success.

exchange ideas and to support pre-competitive research and development with respect to digital technologies and new applications, particularly ones targeted to the underserved.

- 3. *Creating a new digital venture fund*** to invest in emerging business opportunities and technology-based start-ups, particularly those that develop and leverage use of digital technologies to enhance business productivity and consumer quality of life.

F. COMMUNITY-BASED ORGANIZATIONS AND THE NONPROFIT SECTOR

Community-based organizations (CBOs) will be a linchpin connecting the Campaign for Digital Excellence to lower-income individuals and communities. Such organizations will be deeply involved in planning and designing the Campaign, and in making adjustments throughout the implementation phase. Many Chicago nonprofits are already working on aspects of digital excellence, including offering many of the city's best programs in digital literacy, training lower-income individuals and families in use of the Internet and basic computing.

Community-Based Organizations

Community-based organizations should make the Campaign for Digital Excellence a top priority, expanding the distribution of computers and delivery of goods, services and training; ensuring quality control; and conducting outreach to less digitally connected individuals and groups.

Community-based organizations are especially well suited to develop and deliver bundles of goods, services and training to new users of technology. They also can manage the distribution of computers for the home and provide set-up support. Such bundling may be a critical aspect of breaking through to those who do not use the Internet. While there is no sound research on this subject, a one-stop shop, operated by a trusted local organization, attuned to the specific needs of the local community and offering an attractive and affordable package of hardware, software and training, may be a very attractive solution for those currently not online.

- 1. *Community-based organizations need additional resources.*** The Partnership for a Digital Chicago (through the Digital Excellence Trust), the city, local corporations and foundations should all make resources available to support ongoing and expanded operations of CBOs.

CTCNet

Community technology centers (CTCs) are at the forefront of providing computer access and training to underserved communities and can play critical roles in helping Chicago achieve digital excellence. CTCNet (www.ctcnet.org) is a national network of CTCs and other nonprofits dedicated to improving technology access and education in underserved communities. Its Chicago chapter, CTCNet Chicago (www.ctcnetchicago.org), serves as a resource center for Chicago CTCs, keeping its members informed of funding opportunities and networking events and providing information on best practices in such areas as program development and training curricula.

2. Community-based organizations ***should pay special attention to communities with high rates of nonparticipation***: immigrant communities, seniors, people with disabilities and those with literacy limitations.⁴⁶ In each case, they may need to partner with organizations that already reach out to and serve these communities.
3. Community-based organizations ***should take the lead in developing focused local content for targeted communities***. CBOs can play an important role in helping to develop the content and services that will entice new users online with information that is important to their daily lives.

Foundations

Foundations should make the Campaign for Digital Excellence and the demonstration communities grant-making priorities.

The Campaign for Digital Excellence will contribute to addressing the full range of educational, economic, community and other development objectives of concern to Chicago's philanthropic community. The digital transformations — from expanding financial services for lower-income populations to improving health care and job markets — also will address major foundation objectives. The Council accordingly recommends that foundations make support for the Partnership, the Campaign and the demonstration communities a focus of their grant-making activities. Over time, it is anticipated that the Partnership and Campaign will generate other sources of funding, including from portal operations, business partnerships and business activities in connection with the expanding digital marketplace. Particularly in their early stages, however, they will require significant grant funding.

⁴⁶ For example, SeniorNet, along with the Association for Public Technology, operates several community centers in the Chicago area that train seniors in technology; see www.seniornet.org.

VI Bringing It All Together: Digital Excellence Demonstration Communities



PHOTO: SUSANA VASQUE

Digital excellence builds on itself. As more people achieve it and participate in digital activities, more opportunities emerge, attracting more people, and the cycle continues. The Digital Excellence Demonstration Communities are intended to jumpstart that excellence-building process through coordinated, targeted activities addressing all of the drivers in a particular place. These demonstration projects will seek to get nearly every person, business and institution online, using and participating in a neighborhood portal and translating this online activity into offline — community — development.

Three Digital Excellence Demonstration Communities should be selected by the Partnership for comprehensive programming to achieve digital excellence and transformation and to serve as test beds for programs that can be deployed throughout the city.

Pilot demonstration projects provide a vehicle for getting started quickly, which can both leverage and enhance all of the other activities of the Campaign. The pilots will:

1. ***Be a test bed of ideas***, approaches and programs — this report suggests many different ways of addressing the drivers, and many more will undoubtedly emerge. The pilot projects provide the opportunity to create and test (before they are rolled out citywide), on a smaller but deeper scale, particular programs, financing mechanisms and partnerships to address all of the drivers in a coordinated way, tailored to the conditions of a specific place.⁴⁷
2. ***Demonstrate how digital excellence can practically be achieved*** — concrete results from these pilot projects will act as a “proof of concept”⁴⁸ that coordinated efforts to address the drivers can close the divide and achieve digital excellence.
3. ***Demonstrate how digital excellence can lead to digital transformation*** — as a critical mass of households, businesses and institutions meaningfully participates locally, it creates new market, community-building and service delivery opportunities. Going deep in a particular place allows for building the organizational focus and capacity to seize these transformative opportunities.

⁴⁷ The evaluation and assessment functions described above also should be tested in the pilot communities.

⁴⁸ The Chicago Wireless Task Force recommended a demonstration project for this purpose.

Achieving Digital Excellence

Demonstration projects should aspire to reach every household, business and institution in each target community with an affordable bundle of hardware, software and training that will enable them to participate meaningfully in digital activities.

The core goal of the demonstration communities is to achieve ubiquitous meaningful participation. This will require developing programs and packages of hardware, software and training, with subsidies and financing. Their delivery will require strong local institutional leadership as well as broader partnerships in and outside of the community. The Partnership

for a Digital Chicago, working with public, private and nonprofit sector partners, should develop and implement in the Digital Excellence Demonstration Communities as many of the recommendations in this report as possible. Specifically, it should support the development of a tailored set of products and activities, and the institutions to deliver them, sufficient to reach out and deliver excellence.

While implementation should encompass as many of the recommendations as possible, critical components include:

- 100 percent wireless broadband coverage;
- highly subsidized hardware and software packages, plus expansion of existing Internet access points in libraries, schools, colleges and other locations;
- multiple vendors competing for clients, with direct grant support, through vouchers or both;
- local, credible community-based institutions and partners with comprehensive plans to achieve digital excellence, including effective technology training programs;
- a local outreach and education campaign, including “technology organizers” who contact and engage nearly all households, businesses and local institutions;
- a well-designed local portal for the neighborhood, which meets low-literacy/ESOL design standards, provides critical local information — and much more;
- commitments from local schools and colleges, including roles for youth as technology organizers, digital connectors and trainers;
- substantial participation of local businesses and other local stakeholders;
- partnerships with major corporations with expertise in the drivers or that offer products and services of particular interest (such as financial services); and
- clear goals, benchmarks and assessment plans.

All major citywide institutions should be encouraged to play their part in the pilot neighborhoods. In addition, national organizations and models should be recruited to participate in the demonstrations.

Digital excellence efforts are already underway in several neighborhoods, and careful consideration should be given to including them in the demonstration projects. Once communities are selected, local leadership will be responsible for neighborhood organizing and coordinating, bringing together existing

A ‘TECHNOLOGY TRAINING CORPS’

In Minneapolis, an AmeriCorps grant helped to set up the Community Technology Empowerment Program, which places technology consultants in CBOs that serve low-income and new immigrant communities; see www.technologypower.org.

organizations that work in the neighborhood and assessing current conditions and capacities. Considerable work will be needed on each of the five drivers, and each neighborhood will create its own implementation plan: there is no single road to success in achieving digital excellence.

The Neighborhood Portal

Each Digital Excellence Demonstration Community should have a neighborhood portal that provides extensive, accessible, relevant local content; acts as a gateway to content throughout the Internet; and ultimately allows local residents, businesses and institutions to self-publish and participate actively in community affairs and commerce.

A key aspect of the effort to engage people in the demonstration communities should be new neighborhood portals. For most people, and particularly for the underserved, the issue is not just access to the Internet, but what they can do with it — whether it helps them in their daily lives. People are especially interested in local content. A well-designed neighborhood portal will act as a magnet, attracting people to the digital world.

The portal should start with engaging, action-oriented and educational content tailored to the local community. It can serve as a “neighborhood commons,” providing comprehensive information on the neighborhood and access to local services and activities, including:

- information on the Digital Excellence Campaign, including the specific local demonstration programs;
- a directory of local community services, ranging from religious organizations to day-care providers, becoming over time more than a directory — evolving toward access and transactions as local organizations become digitally proficient and participate actively in the portal;
- listings of local jobs and housing;
- local business listings and online goods and services;
- a community calendar of local events; and
- an electronic forum for community engagement and discussion.

The pilot portal should be used to experiment with many different kinds of information and services that can help forge new opportunities in the community.

The portal is intended to be much more than a community website that simply provides information. It should be a community platform — a new mechanism for generating, aggregating and sharing information; for expanding participation in the life of the community; and for exchanging goods and services.

As technology organizers reach more and more people, businesses and institutions, and bring them online, the portal’s content and capacity should expand dramatically. As a local health clinic comes online, it will draw people to the portal for health information and to make appointments. A local store coming online might offer discount coupons and post an employment opening to a local job board on the portal. Ultimately, the portal should allow residents, businesses and local institutions to self-publish content, to offer and exchange goods and services and to identify and participate in community activities and forums.

CHICAGO DIGITAL ACCESS ALLIANCE

Chicagoans are already organizing to express their support for the wireless broadband network, and to ensure that it translates into digital excellence. The Chicago Digital Access Alliance (CDAA) is an association of community development corporations, nonprofit agencies, community technology centers and community development activists whose mission is to expand digital access and inclusion and achieve technology fluency and service delivery throughout Chicago. Among many other activities, CDAA has developed a proposed Community Benefits Agreement, a digital excellence plan and community demonstration projects. CDAA is planning informational meetings and launching a digital excellence awareness initiative, as well as advocating for digital legislative policies, and for developing Local Opportunity Networks™ (a new approach to community economic development that leverages the power of local portals). Many of the recommendations in this report reflect the aspirations of CDAA.

CDAA's partnership roster numbers more than 60 community development corporations, community technology centers and community development groups representing more than 40 of Chicago's 77 communities.

Achieving Digital Transformation

As very broad, meaningful digital participation is achieved — when local residents, businesses, schools, health centers and community and other organizations are participating routinely in the community portal — the demonstration communities should seize emerging on- and offline business and community-building opportunities.

The aim of the pilot demonstration programs is nothing less than the practical realization of the vision described at the opening of this report — digital transformation. If all of the activities recommended in this report are applied together, in a single concerted, coordinated campaign, nearly every business, individual and community organization in a community will be participating meaningfully in a neighborhood portal and beyond. This level of digital excellence creates enormous new social and economic opportunities.

The key will be to integrate on- and offline activities, so that offline activities drive traffic to the portal, and then leverage the opportunities created by the increased information and connections. As digital connectedness and use grows, new opportunities emerge — and offline entrepreneurs, businesses and community organizations seize them. This leads to comprehensive, up-to-the-minute, specialized market information and access, which can be used to create, attract and grow business. Poorer people and places that have been isolated from the economic mainstream can be seen and served more accurately and effectively.

This is an ambitious vision, and one that will emerge gradually. However, the demonstration projects will have the capacity, in a relatively small place, to reach critical mass, and to show that with the meaningful participation of all of a community's people, businesses and institutions, remarkable new digital opportunities are created.

VII Important Considerations



Looking Ahead

A. EVALUATION

The strategy outlined above is drawn from pathbreaking work in other cities as well as the concerted efforts of the Advisory Council, based on input from public, private and nonprofit sector leadership. However, this is new territory, and the Partnership for a Digital Chicago will need to learn and improve as the Campaign proceeds.

As implementation begins, the Partnership should develop a clear set of quantitative objectives and related benchmarks.

The Partnership for a Digital Chicago should contract with a local university center to undertake statistically valid baseline surveys — in the demonstration communities and citywide — and track progress.

Following are a few possible benchmarks, as a starting point for consideration.

- **Access** measures might include:
 - ◆ the percentage of the population (and households) receiving broadband access;
 - ◆ the number of subsidized access accounts; and
 - ◆ the number of public Internet access points established, and measures of their use, by neighborhood.
- **Hardware** and **software** measures might include:
 - ◆ the number and quality of computers and software packages distributed through specific programs.

- **Education** requires both quantitative and qualitative measures for:
 - ◆ the number of new users trained through the digital excellence-related training programs;
 - ◆ specific benchmarks for particular training programs (for example, those operated by CTCs, the IT Resource Center or the schools);
 - ◆ number of help desk requests logged at appropriate intervals;
 - ◆ digital standards and credentials developed by the schools for students and teachers; and
 - ◆ non-test metrics to capture some of the qualitative aspects of digital learning in the classroom — focused, for example, on use of digital tools and on digitally oriented awards and competitions.
- **Mind-set** tracking will be especially important to ensure that the applications and activities that are necessary to attract nonusers to the Internet are in place and working well. Key metrics may include:
 - ◆ portal tracking focused on the new Chicago Connects portal, and
 - ◆ population surveys or other data sources indicating the extent to which the Campaign for Digital Excellence is known and understood in underserved communities.

Beyond measuring progress on each of the drivers, it should be possible over time to track overall digital excellence and transformation. The “New Economy Index,” for example, tracks the percentage of population online; the number of Internet domain name registrations; technology in schools; the degree to which state and local governments use information technologies to deliver services; and residential and business access to broadband telecommunications, along with many other factors measuring effects on innovation and economic activity.⁴⁹

B. BEYOND CURRENT TECHNOLOGIES

The digital world has already moved far beyond the computer. Currently, Internet-connected devices include cell phones, gaming devices, thin-client terminals and digital music players, and new devices undoubtedly will hit the market in the near future. We can safely predict that those, too, will be replaced. Experts have suggested that computers will become so integrated into everyday items (maps, health monitors, passports) that they will essentially vanish, becoming “the remote control for life.” In fact, before long, computers may cease to be the primary tool for accessing the Internet.

Changing technology, of course, affects not merely the devices we use but, just as important, the underlying infrastructure that supports those devices. WiMAX is also being developed as a potential alternative infrastructure to support high-speed data transmission for mobile devices, and, indeed, a private vendor anticipates deploying it in Chicago by the end of the year.

All of this simply reinforces what we emphasized at the outset: ***the potential wireless broadband network provides a catalytic opportunity to focus on digital excellence, but the Campaign must transcend any particular technology.*** The best solution today will not be the best solution tomorrow. To ensure that our efforts are not outpaced by technological advancements, it is necessary to create a digital climate that pays ongoing attention to changes in infrastructure, access devices, software, and user interactions.

The explosion of possibilities to connect to the Internet means that the Internet can only become more ubiquitous, more comprehensive and more deeply integrated into everyday life. As our ties through the Internet become deeper, the opportunities they present become more important as well.

⁴⁹ See Innovation Technology and Innovation Foundation, www.itif.org.

C. A WORD OF CAUTION — ONLINE SAFETY AND COMPUTER SECURITY

Full of opportunities, the Internet is a critical pathway to future prosperity precisely for the populations that use it least. However, the Internet is also home to predators of all kinds, and those charged with bringing underserved populations online are responsible for making sure that this is done as safely as possible. This may require development and implementation of new tools and technologies, such as anti-fraud tools.

New users will be exposed to a broad range of challenges: online and e-mail scams; hackers seeking private information and exploiting it for identity theft; and material not suitable for children. These concerns fall into two interrelated areas: the safety of users and the security of the network and computer equipment itself.

We recommend that the Campaign help new users understand that they, too, make an important — in fact, essential — contribution to online safety by using standard protocols for safe computing. Users must learn to protect themselves by identifying potential fraud. At the same time, they must learn to protect their computers by not opening unexpected attachments and by keeping protective software like virus scanners and firewalls on and up-to-date. A basic part of the digital education promoted throughout this report should include training on Web safety. Substantial resources already exist on these subjects.⁵⁰

Parents, in particular, need to take significant steps to provide a safe computing environment. In particular, parents should⁵¹:

- ◆ Place the computer in a “public” space in the home, like the kitchen or living room, rather than in a bedroom. Computers and the Internet should be a tool for collaboration and communication, rather than isolation.
- ◆ Learn with their children as much as possible. Help each other find information on the Internet, learn how to use new software or compose e-mail messages to family members in other cities.
- ◆ Emphasize that the computer is a tool for research and communication, not merely entertainment, and encourage their children to use Internet research for school projects and otherwise.

Finally, we recommend that the Partnership for a Digital Chicago work with major IT providers in Chicago to develop protocols for safe computing and conduct outreach and education, including extensive training for the schools, libraries, CTCs and CBOs that will be on the front line of deploying tools and technologies for the Campaign.

D. ENVIRONMENTAL CONCERNS

Moving toward universal connectivity will lead to an increased demand for computer equipment, which ultimately will require further efforts to manage the increased volume of “electronic waste” in an environmentally responsible manner. Where possible, discarded computers should be refurbished for reuse, which has the dual benefit of providing affordable hardware and preventing discarded computers from

⁵⁰ See, for example, www.getnetwise.org.

⁵¹ More extensive resources and guidelines for parents can be found in “A Parents' Guide to Online Kids” and “The Parents' Guide to the Information Superhighway: Rules and Tools for Families Online,” both available from the Children's Partnership, www.childrenspartnership.org, and at www.netsmartz.org, an Internet safety resource from the National Center for Missing & Exploited Children and the Boys & Girls Clubs of America.

ending up in landfills, where hazardous chemicals can leak into soil and groundwater. When refurbishment for reuse is not possible, it is important to provide for disassembly and for reprocessing of any hazardous materials in an environmentally responsible manner.

The City Department of the Environment already undertakes several model initiatives for computer reuse and recycling. Twice-annual “e-cycling” days collect computers and other consumer electronics at drop-off points around the city. In addition, the Department operates a Household Chemical and Computer Recycling Facility where Chicagoans can bring household electronics for safe disposal. Both the “e-cycling” program and the Recycling Facility aim to refurbish and reuse as much equipment as possible, and recycle the rest.⁵² Consideration should be given to expanding the refurbishment program, or developing additional programs for computer recycling, as the Campaign proceeds.

⁵² This program is briefly described in a text box on page 47; more information is available on the department’s website.



Conclusion

A broadband network constitutes core infrastructure for a 21st-century Chicago. Even more important, the potential wireless broadband network provides an opportunity for Chicago to take the next great steps into the digital age. Achieving digital excellence will dramatically expand the information, innovation, networks and transactions that drive prosperity and well-being in the global knowledge economy and society. In past centuries, cities have been conceived in terms of the movement of physical goods and people. Today, successful cities are increasingly hubs for the flow of ideas and knowledge. Think “Cities 2.0.” In this era, the city that works will be the city that networks. There is no better place than Chicago to once again lead the way.

Glossary

- 3G (third-generation technology):** generic term for the next generation of mobile communications networks. 3G technology allows mobile devices to transfer voice and nonvoice data simultaneously at higher speeds than current cellular telephone networks allow. The first 3G network was built in Japan, where most cellular phones now use 3G standards.
- Bandwidth:** refers to the data transmission capacity or rates of a given system.
- Broadband:** refers to the relatively high speed of data transmission of various technologies compared to a dial-up connection to the Internet. Common residential broadband technologies in the United States include DSL, cable, satellite and wireless broadband connections. The Federal Communications Commission currently defines broadband as a data transfer rate of 200 kilobits/s (0.2 Mbps) in both directions. Most vendors and all international standards define broadband as considerably faster than that.
- Digital Subscriber Line (DSL):** technology that uses the unused bandwidth on telephone lines to transmit data without disrupting telephone service. Most DSL service in the United States is Asymmetric DSL (ADSL), a specific application of DSL technology in which download speeds are three to four times faster than upload speeds. DSL is usually much slower than cable networks.
- Ethernet:** family of standardized computer-networking technologies for local area networks (LANs), similar to the network inside a home or office. Along with wireless broadband, Ethernet is one of the most commonly used technologies for LANs.
- Fiber-optic communications:** transmitting data by sending light through cables consisting of many glass fibers. Fiber-optic communications allow larger quantities of data to be sent longer distances at higher speeds than do electronic communications.
- Hyperlink:** part of the foundation of the World Wide Web, hyperlinks are elements embedded in a document that, when activated, lead to the immediate retrieval of another document. The connections that hyperlinks make between documents are what make the Web a web, and not a warehouse.
- HyperText Transfer Protocol (HTTP):** standard method of transferring information over the World Wide Web. HTTP was originally developed and is still most widely used to publish documents.
- Internet:** vast network of millions of smaller residential, government, business, university or other networks that transmit data using the standard Internet protocol. Internet refers to the infrastructure of computers and the wires (or wireless signals) that connect them, not to be confused with the World Wide Web.
- Internet service provider (ISP):** business or organization that provides consumers or businesses with access to the Internet.
- Killer application:** application so attractive that it dramatically enhances the use and thus the value of the underlying technology that supports it. Classic examples of “killer apps” include e-mail, which drove the widespread use of computer networks, and Web browsers and search engines, which made the Web accessible and useful to vast numbers of users with relatively limited computer skills.
- Local area network (LAN):** computer network covering a small geographic area, such as a home, office or group of buildings. Most LANs currently use either Ethernet or wireless broadband protocols. A LAN is typically defined not by its size but by the fact that it does not require using leased telecommunications lines.
- Mesh networking:** method for routing data between nodes of a network in which the data “hop” from one node to another until they reach their destination. This way, not every node needs to be connected to every other, and even if several connections fail, the network may remain intact.

Modem: a device that converts analog signals to digital and vice versa. Modems allow digital devices (such as computers) to communicate along analog wires (such as telephone lines). Modems are increasingly being replaced by all-digital equipment such as routers.

Net: short for “the Internet,” but often used to mean the Web.

Net neutrality: principle governing the operation of a network that states that the network should not discriminate among the types of content flowing through it. A network that charges lower fees or provides faster transmission speeds for data from some websites than it does for others violates the principle of net neutrality.

Open source: originally and most commonly used to describe a method of software development whereby the source code of a given application is shared with the public and can be modified by any user, open-source principles are now applied to the design of a wide range of products. Open-source methods are premised on broad collaboration enabled by making information widely available. Successful examples of open-source software projects include the Linux operating system, which market research firm IDC estimates runs on 25 percent of all servers worldwide, and Apache Web server software, which — as of February 2007 — served nearly 60 percent of all websites.

Podcasts: audio or video files distributed using syndication feeds. Users subscribe to a podcast feed, and new podcasts are downloaded as they become available. Podcasters range from individuals recording out of their homes to large, well-established media companies. Podcasts can be used to distribute entertainment or news as well as school lessons, meeting updates, public safety announcements or anything else that is conducive to audio or video format and might be updated regularly.

Portal: website that serves as an entrance point to a range of content. A portal is usually meant to serve as users’ “first stop” access point whenever they open a Web browser. Yahoo and Google are the two most widely known and used examples of portals, but most are much more limited in scope, serving a business’s employees or a neighborhood’s residents.

Router: device that connects two or more networks and directs the data traffic flowing between them. In homes and businesses, routers are used to connect the LAN to the ISP’s network.

Uniform resource locator (URL): identifies and locates a document on the Web; commonly referred to as a “Web address.”

Voice over Internet Protocol (VoIP): technology that allows users with broadband connections to conduct voice conversations over the Internet as well.

Web 2.0: refers not to any particular technology or application, but to a new way of using and thinking about the Web that emphasizes collaboration, user-generated content and harnessing the power of network effects. Web 2.0 erases the traditional distinction between “user” and “content provider.” Wikipedia, for example, operates on the premise that anyone who reads an article may also become a writer and an editor.

Wi-Fi (short for wireless fidelity): allows mobile devices, such as laptop computers and personal digital assistants (PDAs), to connect to LANs without wiring. A person with a Wi-Fi-enabled device can connect to a LAN when he or she is near one of the network’s access points. Since the access point is broadcasting its signal via radio waves, there is no need to physically plug the device into the network to make a connection. If the LAN is connected to the Internet, the Wi-Fi device has Internet access as well. The geographical region covered by one or several access points is called a hot spot. City of Chicago hot spots are called Wireless Internet Zones (WIZs).⁵³

Wiki: website that allows visitors to expand and edit content of the site. Wikis can be open to any and all users (such as Wikipedia), or they can be used by a specific group of people or organizations collaborating on a project.

⁵³ Excerpted from City of Chicago website.

WiMAX (Worldwide Interoperability for Microwave Access): WiMAX is a set of standards for broadband wireless data transmission that attempts to address Wi-Fi's limitation regarding transmission distances. WiMAX operates with a range of up to 70 miles, although transmission speeds decrease with distance and are further reduced by disruptions to line-of-sight transmission. In practice, in a dense urban environment, WiMAX might deliver transmission speeds up to 10 mbps at a range of about 1.25 miles.

World Wide Web (the Web): collective term for all of the individual Web pages accessible via the Internet. Each Web page can be accessed via a unique URL. Documents are also linked to each other using hyperlinks.

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