# Proposed Framework for Digitally Inclusive Communities

*Final Report*

INSTITUTE of Museum and Library SERVICES

TECHNOLOGY & SOCIAL CHANGE GROUP
UNIVERSITY of WASHINGTON
Information School

ICMA
Leaders at the Core of Better Communities

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## ABSTRACT

Digital inclusion is the ability of individuals and groups to access and use information and communication technologies. Not all members of a community benefit equally, and some communities have been left out altogether. The *Proposed Framework for Digitally Inclusive Communities* is a guide for fostering digital inclusion throughout the United States so that everyone can take advantage of digital technologies. The Framework is structured around a vision for the future, principles that define digital inclusion, goals to make digital inclusion a reality, and sample strategies for achieving the goals. Specific strategies and implementing activities may vary from one community to another.

## KEYWORDS

IMLS, digital inclusion, public libraries, community-based organizations, National Broadband Plan, digital access, accessibility, broadband access, ICT training and support, equity, consumer education, digital literacy, online job search, online access

## 140-CHARACTER SUMMARY

Framework for Digitally Inclusive Communities provides guide for digital inclusion in US, with a vision, principles, goals, and strategies.

## RECOMMENDED CITATION

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# 1. Introduction

## What is digital inclusion, and why does it matter?

Digital Inclusion is the ability of individuals and groups to access and use information and communication technologies. Digital inclusion encompasses not only access to the Internet but also the availability of hardware and software; relevant content and services; and training for the digital literacy skills required for effective use of information and communication technologies.[1] The cost of digital exclusion is great. Without access, full participation in nearly every aspect of American society — from economic success and educational achievement, to positive health outcomes and civic engagement — is compromised.

What does digital inclusion mean for people in a community?[2] Simply, it means that:

- All members understand the benefits of advanced information and communication technologies.
- All members have equitable and affordable access to high-speed Internet-connected devices and online content.
- All members can take advantage of the educational, economic, and social opportunities available through these technologies.

The diffusion of the Internet and other information and communication technologies has enabled communities around the United States to reap the rewards of greater connectivity (FCC, 2010). Individuals and organizations from all sectors — including the general public — have been able to expand and enrich their services through these new technologies. Not all members of a community benefit equally, and some communities have been left out altogether. These excluded individuals and communities risk being deprived of basic needs such as education, employment, and social interaction that increasingly occur through the Internet and other advanced communication technologies.

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[1] Definition based on *Communities Connect Network*, available at http://seattle.gov/tech/overview/What_is_Digital_Inclusion.pdf.

[2] The term "community" is understood here in its broadest sense. A community can be a geographic entity, but it can also reflect other characteristics, such as occupation, interest, or identity.

The obstacles to adoption of communications technologies are varied, as demonstrated in the Summary of Research on Digital Inclusion (Appendix 3). The barriers most commonly cited were individual attitudes to the technology and the cost of access, as well as a perceived lack of relevant content. Several studies pointed to the need for better and wider communication regarding the availability of resources as well as the potential benefits of digital participation.

## Background and process

Recognizing the cost to American competitiveness in a global economy, Congress directed the Federal Communications Commission (FCC) to develop a plan to ensure that every American has "access to broadband capability." Issued in March 2010, the *National Broadband Plan* recognized the pivotal roles that libraries and community-based organizations play in providing digital training and support, as well as access to high-speed Internet and related community information services, and called on the Institute of Museum and Library Services (IMLS) to

> ...develop guidelines for public access technology based on populations served and organization size.
>
> These guidelines would help libraries and community-based organizations assess their needs for public access workstations, portable devices, and bandwidth. IMLS should work with these organizations to develop guidelines and review them annually to reflect changing technology and practices. (FCC, 2010, Recommendation 9.3.)

To work toward this recommendation, IMLS, working in cooperation with the University of Washington (UW) and its partner International City/County Management Association (ICMA) (together referred to as the "cooperators") has developed the *Proposed Framework for Digitally Inclusive Communities* ("Framework"), presented in this report, to identify the overarching principles as well as the elements or key characteristics of organizations and communities that foster digital inclusion.

As part of this effort, over one hundred representatives from libraries, community-based organizations, business, local government, and non-governmental organizations were engaged in the development of a proposed Framework. Their views were sought to help ensure that the Framework will be relevant and useful to professionals in the field of digital inclusion, as well as to

increase the credibility of the Framework with communities that will eventually implement it.

The representatives were assembled into two groups. A 16-person Digital Inclusion Working Group (the "Working Group") was selected to assist with the drafting process. The members of this group include a broad range of expertise and represent a variety of organization types, populations, geographies, and technical areas. The Working Group met for two days in January 2011 to review a draft Framework, and also engaged in online discussions and interactive web conferences throughout the Framework development process.

A wider group of about 80 reviewers, known as the Digital Inclusion Network, was formed at the same time, selected by the cooperators with Working Group input. This group represented organizations that are active in implementing digital inclusion policies and services, such as library systems, technology consultants, and educational institutions (see Appendix 2 for a complete list of Working Group and Network participants). The Network provided their comments on draft versions of the Framework through an online social network and also through web conferences.

With the drafting process complete, the cooperators have released this proposed Framework. A companion document, *Building Digitally Inclusive Communities: A Guide to the Proposed Framework*, is designed as a resource to help communities put into action the ideas contained in the Framework; the guide is included at the end of this report.

In the next phase of the project, IMLS will convene a series of community forums in the summer of 2011 in order to enable wider feedback on issues of digital inclusion as well as information for guiding the development of additional implementation activities. These community forums will also explore how the Framework can be used by community leaders. The resulting final version of the Framework will incorporate insights from the community forums and will serve as a resource for organizations and leaders around the country seeking to improve the digital inclusiveness of their communities.

# 2. Understanding the proposed framework

The *Proposed Framework for Digitally Inclusive Communities* provides a roadmap to help communities chart a course toward improving digital inclusiveness — toward expanding the economic and social opportunities provided by digital technology to all its members. The proposed Framework consists of four components:

1. Vision for the future
2. Principles that define digital inclusion
3. Goals to make digital inclusion a reality
4. Strategies for achieving the goals

Figure 1 illustrates the interrelationship of these four components. The foundational vision informs the other three components. The principles yield specific goals. Goals, in turn, shape real-world strategies for implementing the Framework. The sample strategies serve as illustrations of the kinds of initiatives that communities may choose to implement in order to achieve the vision of a digitally inclusive community.

*Figure 1. Proposed framework structure*


Four main assumptions informed the vision, principles, goals, and strategies of the proposed Framework:

1. Advanced digital technology enables economic and social well-being.
2. Digital inclusiveness is a worthwhile public policy goal for which public and private resources should be mobilized.
3. Community stakeholders are actively engaged in efforts to build digital inclusiveness.
4. The creation of a digitally inclusive community requires the involvement of all sectors of the community, any one of which can provide leadership and be a catalyst for action.

## Vision: What is a digitally inclusive community?

What does a digitally inclusive community mean for its members? The proposed Framework incorporates vision statements that are forward looking and optimistic about future opportunities enabled by technology. They articulate an overarching digital identity of a community from several perspectives:

- How residents experience a digitally inclusive community
- How economic growth may be facilitated by technology access
- How government and civic society can be enhanced by connectivity
- How underserved populations might be afforded opportunities through technology

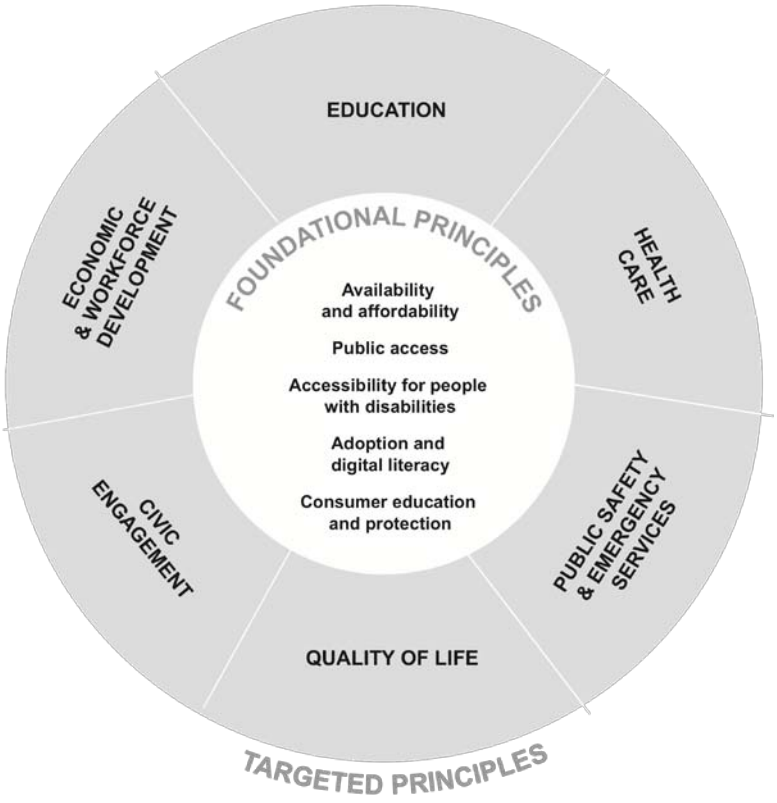
## Principles: Statements of intention

Eleven principles comprise the backbone of the proposed Framework. Principles are statements of intention that state the rationale for focusing efforts in the areas most important for making the entire community digitally inclusive now, for planning for the future, and for identifying areas where special effort will be required. The principle statements

- Are fundamental propositions that support specific goals
- Can be considered "mission statements" that further embody the vision statements
- Classify aspects of the vision statements into actionable areas

The eleven principles are divided into foundational principles and targeted principles. It is important to note, however, that the ordering of the principles within each grouping is not intended to dictate an overall strategic prioritization; priorities will be determined by individual communities through their self-assessment of community needs. Figure 2 shows the relationship between the two types of principles.

*Figure 2. Foundational and targeted principles of digital inclusion*




The five foundational principles are:

1. Availability and affordability
2. Public access
3. Accessibility for people with disabilities
4. Adoption and digital literacy
5. Consumer education and protection

The six targeted principles are:

1. Education
2. Economic and workforce development
3. Civic engagement
4. Public safety and emergency services
5. Health care
6. Quality of life

## Goals: How to achieve a digitally inclusive community

Each of the eleven principles is associated with goals and expanded goals. The goals identified in the Framework articulate the core commitments needed to realize the stated principles and to achieve the vision of a digitally inclusive community. The expanded goals provide guidance for additional commitments that, while not essential, may enhance a community's digital inclusiveness. Both types of goals

- Are tools to help keep the community focused on achieving the vision
- Point to strategies that enable individuals and organizations to take steps that contribute to achieving the vision statements
- Provide a foundation for future benchmarking and evaluation

## Strategies: How the goals can be achieved

Specific strategies and implementing activities will vary from one community to another depending on local circumstances and priorities. The creation of a digitally inclusive community requires the involvement of all sectors of the community — and any of them can provide leadership and function as a catalyst for action.

Strategies need to involve four main levels of activity:

A. **Local government** plays a critical role in all aspects of community planning and development. It has a core responsibility to help the community develop a digital inclusion plan and provide incentives and resources for its implementation.

B. **Libraries, community-based organizations, and other community anchor institutions**[3] are the primary places where people can be assured access to digital technologies, along with training and support. They are safe and trusted institutions, available in most communities.

[3] "Anchor" institutions are community institutions that serve as a resource for broad segments of the population: schools, libraries, health care providers, public safety entities, community colleges and other institutions of higher education, and other support organizations.

C. **Businesses** provide the broadband infrastructure, along with many services enabled through the infrastructure. They may provide access to the Internet in coffee shops, restaurants, hotels, and other public locations. They, too, play a key role in providing opportunities for digital inclusion.

D. **Individuals** are at the core of a democratic society. They have the ability to influence community policies, values, and programs as they express themselves in the political process and can advocate for digital inclusion. Digital inclusion, in turn, has the potential to improve individuals' personal, social, and economic well-being and enable them to participate more fully in their communities.

In addition, stakeholders will need to focus on the broader level of strategic activity:

E. **Influencing policy** is an important dimension of working toward full digital inclusion. This area of advocacy may be pursued by individual or organizational "champions" at the local, regional, or national level.

The following sections set out the Framework in greater detail. Section 3 briefly discusses the Vision of a digitally inclusive community. Sections 4 and 5 outline the foundational principles and the targeted principles, each with their related goals and sample strategies.

# 3. The vision: What is a digitally inclusive community?

The overarching vision that motivates this Framework is simple but ambitious:

- All people, businesses, and institutions will have access to digital technologies and content that enable them to create and support healthy, prosperous, and cohesive 21st century communities.
- Each community will benefit from harnessing the potential of technology to address its most pressing needs and those of its members.

By choosing to implement the Framework, communities demonstrate commitment to these specific elements of the overall vision:

- Internet access is available to all residents, visitors, businesses, government agencies, libraries, and other community-based organizations.
- Public access is high speed, affordable, physically accessible, and capable of supporting current demand and future growth.
- Broader opportunities for economic development are available through full use of information and communication technologies.
- Technology is used to foster social inclusion, educational and employment opportunities, access to health care, civic participation, and innovation, as well as to drive efficient and effective government services.
- Respectful support is provided for populations that need help to participate fully in digital life, because of physical, cognitive, educational, social, geographic, or economic barriers.

# 4. Foundational principles

Five foundational principles cut across all sectors of the community and comprise the basic requirements for creating a digitally inclusive community.

## Principle 1: Availability and affordability

Communities need reliable and affordable access to broadband technology infrastructure in order to be fully engaged and competitive in today's information-based world.

A community's communications infrastructure is the raw material for its innovation and growth. Local governments need to act in cooperation with other government entities, the private sector, and community-based organizations to foster competition and to lower costs — both of building and maintaining communications infrastructure and of entering into the digital marketplace. Public and private entities need to partner to lower the costs of digital inclusion in general and to provide specific assistance to those who cannot bear the full cost of home access.

Recognizing that greater bandwidth speeds and coverage will be required in the future, these goals are intended to address the immediate needs for high-speed access while preparing for that growth.

### Goals

- Access to high speed Internet in every household, business, and community anchor institution at actual download speeds that meet or exceed the service goals and milestones set by the FCC.
- Pricing structures that enable businesses, institutions, and households to afford access to digital technologies.
- Uniform Internet Service Provider (ISP) pricing information that is accessible and usable to enable consumers to compare plans available in the community.

- Competitive deployment of infrastructure through right-of-way policies that remove barriers to market entry and system upgrades.

## Expanded goals

- Programs to subsidize monthly Internet subscription costs for low-income people, with priority given to households with children enrolled in free- or assisted-lunch programs.
- Strategies to provide low-income households assistance with hardware, software, and peripheral equipment purchase and maintenance.
- Comprehensive standards for broadband readiness in new buildings, renovations, and existing anchor institutions.
- Incentives to stimulate market competition and private investment in broadband networks.
- Cooperative networks among community anchor institutions, such as schools, hospitals, and libraries.

## Sample strategies

### INDIVIDUAL

- Donate used technology equipment to community groups that provide equipment to low-income households and community organizations.
- Test actual upload/download speeds against advertised speeds at: http://www.broadband.gov/qualitytest/

### LIBRARIES, CBOs, AND OTHER COMMUNITY ANCHOR INSTITUTIONS

- Ensure that community anchor institutions have access to national community anchor networks, such as UCAID, U.S. UCAN, and the National LambdaRail.
- Develop partnerships with other organizations to share networks and leverage investments.
- Form partnerships with local businesses to redistribute used computers to low-income households, community organizations, and others.

### BUSINESS SECTOR

- Support competitive policies, to expand markets and encourage innovative options for broadband.
- Donate used computer equipment to nonprofit groups that provide digital inclusion services.

### LOCAL GOVERNMENT

- Ensure that municipal and state agreements with cable, telecommunications and other digital content providers are negotiated to obtain the highest possible download and upload speeds (not the minimum).
- Coordinate efforts and collaborate with other regions to reduce costs of developing broadband infrastructure.
- Inventory existing network infrastructure, including service quality, costs, and location of community anchor institutions for those without home access — and make inventory information available to community members.
- Maintain local comparisons of Internet service provider prices and options.
- Validate accuracy of information in National Broadband Map.

### INFLUENCING POLICY

- Support policies to open additional spectrum and provide increased bandwidth for use by public institutions.
- Support policies to extend Universal Service Fund subsidies to Internet services.
- Promote standards for measuring upload/download speeds and for comparing prices of service bundles among local Internet Service Providers.
- Advocate that the FCC continue to evaluate the use of wireless spectrum, particularly when spectrum use is revised.

# Principle 2: Public access

In a world connected by technology, all people, regardless of income, need access to information and communication technologies in order to be fully engaged members of society, both economically and socially.

Some community members have little or no communication technology available in the home, or may need training in how to use technology effectively. Others need public access technology to supplement limited connectivity at home or in schools. Still others need public access technology to assist during emergencies. Visitors need public access to be able to keep connected to family and work while away from home. Implementing the following goals will ensure that uninterrupted technology and connectivity are available through free public access.

## Goals

- Sufficient, convenient free access to computers, Internet, wireless networks, and other communication technologies to support the needs of residents, workers, and visitors.
- Public access technology in safe facilities, with adequate levels of privacy, security, and accessibility for people with disabilities.
- Broad community awareness of the availability of public-access technologies.

## Expanded goals

- Community members provided training on safety and security while using wireless networks and public access locations.
- Access to well-targeted public electronic information, available at strategic locations such as community-based organizations offering social service assistance.

## Sample strategies

### INDIVIDUAL

- Advocate for sufficient funding for libraries and other community-based organizations to support public access in the community.

- Share stories with policy makers about how public access technology benefits members of the community.

### LIBRARIES, CBOs, AND OTHER COMMUNITY ANCHOR INSTITUTIONS

- Develop partnerships between libraries and community-based organizations to provide public access to technology (and technology support) in high-need locations.
- Support development of community technology centers for special populations, including housing complexes, language groups, etc.

### BUSINESS SECTOR

- Develop partnerships and strategic alliances with public libraries and other community-based organizations to provide public access equipment, trainers, and other resources.
- Inform users of business-supported wireless networks on best practices for protecting private information on public networks.

### LOCAL GOVERNMENT

- Maintain a directory of public access providers and post signs indicating access points.
- Support the development of wireless hotspots (including public-private partnerships) for residents and non-residents.
- Budget adequate funding for public access in public libraries and other community institutions.

### INFLUENCING POLICY

- Support efforts to develop guidelines for determining the levels and types of public access necessary to support a community's needs.
- Support programs that provide resources for local public access, including E-rate and other funding programs.

# Principle 3: Accessibility for people with disabilities

Communities should ensure the full participation of all their members, by embedding accessibility to digital technology for people with disabilities throughout their institutions, processes, and public awareness efforts.

Current mainstream technology does not accommodate a wide range of cognitive, physical, or other differences. People with disabilities, either permanent or temporary, may be prevented from fully participating in digital life and may be denied opportunities that could otherwise enhance their lives. As a result, the community may be denied their contributions to its civic, social, and economic health. The following goals reflect a commitment to erasing the boundaries between differences in abilities and to reducing the obstacles faced by people with disabilities when using technology.

## Goals

- Technology managed in ways that ensure access for people with disabilities, including, at a minimum, full compliance with the letter, intent, and spirit of accessibility laws and regulations.
- Businesses and community-based organizations equipped with the skills and know-how to comply with accessibility standards and design technology-based services using universal design.[4]
- Assistive technologies available at public access locations.
- Disabled persons equipped with the skills and assistive devices necessary to access technology and create content.

## Expanded goals

- Universal design incorporated in the development of public services and workplace systems.

[4] Universal design means creating products, technologies, buildings, and environments that are usable by all people — without the need for adaptations or specialized design (Mace, Hardie, & Place, 1991). Learn more at http://www.ncsu.edu/www/ncsu/design/sod5/cud/about_ud/about_ud.htm

- Local organizations that serve people with disabilities equipped to provide appropriate accommodation with assistive technology and other types of personalized help.
- Public and private institutions more fully aware of the impact of their technology decisions on the inclusion of people with disabilities.

## Sample strategies

### INDIVIDUAL

- Clearly express personal accessibility needs and preferred accommodations to technology providers, and advocate for these accommodations on behalf of others.
- Participate in volunteer programs that provide one-to-one assistance in using technology to people with disabilities.

### LIBRARIES, CBOs, AND OTHER COMMUNITY ANCHOR INSTITUTIONS

- Engage in partnerships with community-based organizations that serve people with disabilities, to better design services and accommodations.
- Maintain a central resource library of assistive technology and best practices for accommodating people with disabilities.
- Hold workshops to educate businesses and community organizations about best practices in universal design and use of assistive technology.
- Include technology accessibility as a criterion in evaluation activities for technology initiatives.

### BUSINESS SECTOR

- Align existing online presence with national standards for accessibility; move towards universal design for future projects.
- Invest in the development of assistive technology — with the participation of the disabilities community — to reduce cost, improve design, and enable new applications.

#### LOCAL GOVERNMENT

- Commit to adopting nationally recognized standards for technology accessibility; direct future projects toward universal design principles.
- Assess and manage information technology projects for government and essential services online in a manner that includes people with disabilities and other vulnerable residents in all phases of new technology development and deployment.
- Provide education, training, and incentives to businesses and organizations for creating accessible technology and complying with accessibility standards.

#### INFLUENCING POLICY

- Support enforcement of existing accessibility laws as they apply to the digital environment.
- Support national efforts to promote the adoption and use of universal design standards for accessibility.

## Principle 4: Adoption and digital literacy

Beyond having access to technologies, people, businesses, and institutions need to understand digital technologies and how to use them effectively to achieve their educational, economic, and social goals.

Cost is not the only barrier to technology adoption. Digital literacy skills, including the ability to find, evaluate, and use information, create a pathway to digital inclusion. The motivation to master these skills can come from an awareness of their potential benefits — and of the wealth of relevant content and services available online. The following goals reflect a commitment to ensuring that all residents have the opportunity to participate in the digital life of the community, and to experience the relevance of technology to their own lives.

### Goals

- Digital literacy training needs and assets in the community identified and evaluated.

- Digital literacy training provided through formal classes and real-time virtual help, as well as through one-to-one assistance for individuals, business, and institutions.
- Information literacy instruction embedded in all aspects of curriculum for K-12 and higher education, as well as in life-long learning activities.
- Training and assistance in finding information and evaluating resources, tailored for the needs of the community.

## Expanded goals

- National digital literacy efforts leveraged to bring new resources and methods for teaching literacy to the community.
- Information widely disseminated about individuals' and organizations' rights and obligations with regard to intellectual property.
- Support and tools available to produce, archive, and distribute local media programs and other digital content produced by local voices.

## Sample strategies

### INDIVIDUAL

- Volunteer at the public library to tutor a new user on basic computer skills.
- Help a neighbor connect to the Internet.

### LIBRARIES, CBOs, AND OTHER COMMUNITY ANCHOR INSTITUTIONS

- Coordinate existing efforts to provide digital skills and literacy training between libraries and other community organizations.
- Establish a computer lending program to enable home practice of basic digital literacy skills.
- Organize a "digital literacy corps" of volunteers to improve digital literacy outreach in the community.
- Create a central repository for community training resources.

#### BUSINESS SECTOR

- Form partnerships with libraries and CBOs to provide trainers for computers skills classes.
- Develop eMentoring programs with local schools.

#### LOCAL GOVERNMENT

- Develop a public awareness campaign to educate residents about the value of technology.
- Provide online content and services that are designed for all levels of digital skills.

#### INFLUENCING POLICY

- Support the creation of a national Digital Literacy Corps to provide trained mentors to libraries and CBOs providing community technology services.
- Support the creation of a national outreach and awareness campaign on why broadband matters, focused on key segments of non-adopters.

## Principle 5: Consumer education and protection

Consumers — both individual and institutional — need accurate, unbiased information to understand the technology options available to them, including how to buy and maintain equipment and how to safely navigate the digital world.

Trust is essential to encourage the adoption and use of technology. Engaging in digital life requires the skills to purchase and maintain technology, the knowledge to protect against online threats, and the ability to limit unwanted access to and use of personal information. Online safety is a personal responsibility, but it also requires collective action to educate and assist consumers and enforce standards. The following goals reflect a shared agenda for creating the safest possible online environment for the community.

### Goals

- Training for consumers on the purchase, maintenance, and repair/recovery of technology equipment and services.

- Strategies for training and educating community members about safeguarding personal information, using parental controls, protecting vulnerable populations from cyber-bullying, maintaining systems free from viruses, and protecting against other forms of online abuse.
- Privacy policies adopted by businesses and government that are visible, easily accessible, and comprehensible to consumers.
- Local law enforcement agencies equipped with strategies and authority to pursue cybercriminals while protecting individual civil rights.

## Expanded goals

- Affordable software, along with technical assistance as needed, to support household network security for vulnerable populations.
- Current best privacy practices, with technical assistance as needed, adopted by all organizations handling sensitive data.

## Sample strategies

### INDIVIDUAL

- Maintain awareness of activities children are engaged in online.
- Secure home networks and accounts with strong passwords.
- Educate children about use of technology and online dangers.

### LIBRARIES, CBOs, AND OTHER COMMUNITY ANCHOR INSTITUTIONS

- Engage in coordinated educational activities and public awareness campaigns to raise the visibility of online safety issues.
- Develop procedures for securing sensitive client information.
- Develop partnerships and utilize common curriculums to educate consumers on purchasing and maintaining technology.

### BUSINESS SECTOR

- Implement policies and processes for protecting customer information and for training staff in following security procedures.

- Support legislation that enables prosecution of cyberfraud and cybercrime.

### LOCAL GOVERNMENT

- Provide information targeted to children and families about online safety.
- Develop hotlines to provide information about online safety and for reporting harmful online content.
- Ensure that contractors handling sensitive information have effective safeguards in place to protect data.
- Coordinate efforts with other government agencies to fight security threats to public and government networks.

### INFLUENCING POLICY

- Urge adoption of consumer rights and data protection regulations.
- Support FCC efforts to create a voluntary cybersecurity certification program.

# 5. Targeted principles

The following six targeted principles identify key sectors for digital inclusion initiatives and provide guidance in utilizing the basic infrastructure to enable full community participation in important functional areas.

## Principle 6: Education

Educational institutions should ensure that students have the digital skills to fill the jobs of today and tomorrow, and to reap the potential rewards of lifelong digital learning.

Technology allows people to reach their full potential by connecting them to a diverse range of education resources. No longer is learning confined to schools and classrooms. Today's learners search the world for sources of knowledge across their lifetimes; they benefit from technology continually to discover educational opportunities and improve academic performance.

These goals highlight education as a community asset that can benefit from readily available technology.

### Goals

- Sufficient bandwidth to ensure that schools and other educational institutions can support current and future demand for broadband-enabled technology.
- Technology embedded in curriculum development and instruction, in both formal K-12 and post-secondary institutions and in informal educational activities, to prepare students for 21st century opportunities and challenges.
- Coordination between schools, libraries, and community-based technology centers to maximize delivery of in-school and out-of-school student learning tools.

## Expanded goals

- Teachers trained by qualified instructors on the use of embedded technology in instruction.
- Home access to hardware and Internet connections for all K-12 students, along with real-time homework help and other supports necessary for their academic success.
- Public access technology available for learners, along with assistance for doing homework, research, and other academic tasks using digital resources.
- Access for all school parents to their children's instructors, schools, and governing bodies, to enable them to help their children achieve academic success.

## Sample strategies

### INDIVIDUAL

- Tutor students with their online homework, research, or other academic tasks.
- Volunteer in public learning institutions to help others gain digital literacy skills.

### LIBRARIES, CBOs, AND OTHER COMMUNITY ANCHOR INSTITUTIONS

- Develop computer loan programs or lease programs to provide learners with computer hardware in the home.
- Provide awareness training for parents on educational technologies being used by students.
- Provide training for parents to enable them to interact with instructors and schools using digital technologies.

### BUSINESS

- Develop relationships with K-12 and post-secondary institutions to provide educators with current information on the skills employers need for the 21st century workforce.

- Create directed learning opportunities for secondary and post-secondary students, as a long-term investment in the community's workforce of tomorrow.

### LOCAL GOVERNMENT

- Provide Internet subscription subsidies to low-income learners.
- Ensure that public school instructors receive quality training on how to teach using current technology.

### INFLUENCING POLICY

- Support efforts to adopt standards for maintaining and securing electronic educational records.
- Support efforts to reduce barriers for accessing E-rate funding for schools and libraries.
- Support efforts to reduce barriers to off-hours community use of E-rate funded resources.

## Principle 7: Economic and workforce development

Technology is a powerful engine of innovation and economic growth in today's world. In order for individuals and businesses to succeed in this environment, communities need to foster the mastery of 21st century skills and encourage the use of technology for economic development.

Harnessing technology as a tool of innovation requires developing the knowledge and skills of future workers and entrepreneurs, as well as helping the current workforce update their competencies. Broadband adoption can generate new business opportunities in economically depressed areas and help ensure sustainable growth. The following goals are aimed at enabling productive public-private partnerships to promote jobs and wealth, to attract and retain business and workers, and to prepare the current and future workforce to use technology productively.

## Goals

- Technology training targeted to employers' requirements and to the needs of the workforce in order to promote economic development and create job opportunities.
- Public-private partnerships and cross-agency collaborations to make use of workforce training capacity of public libraries and community-based organizations.
- Development of small businesses and local entrepreneurs by better supporting existing eCommerce and eGovernment tools.

## Expanded goals

- Fully equipped workforce technology trainers available in sufficient numbers to support the needs of the community.
- Training programs regularly evaluated to ensure their effectiveness and responsiveness to community needs.
- Opportunities for hands-on learning available to job seekers through businesses, cultural heritage institutions, and community-based organizations.
- Local government, libraries, and other community-based organizations and social networks equipped to provide access to career information and specialized help for job seekers.
- Internet marketing of the community's economic assets to potential businesses, entrepreneurs, and skilled workers.

## Sample strategies

### INDIVIDUAL

- Become a mentor or career coach, to help new users of digital technologies understand its potential uses in employment and the workforce.
- Keep up-to-date with technology skills by attending training provided in the community and through online tutorials.

### LIBRARIES, CBOs, AND OTHER COMMUNITY ANCHOR INSTITUTIONS

- Provide assistance, training, tools, and resources for job seekers.
- Develop partnerships with local colleges and technical schools to help new business owners access and use technology.
- Develop public-private partnerships and cross-agency collaborations to make use of the workforce training capacity of public libraries and community-based organizations.

### BUSINESS SECTOR

- Make job application procedures appropriate to the skill level required for the position.
- Provide public kiosks for submitting job applications.
- Develop partnerships with libraries and CBOs to offer workforce training in specialty areas.

### LOCAL GOVERNMENT

- Maintain a directory of online community resources and content.
- Design data collection to provide information on the current skills assets of community members and on the needs of the public and private sector workforce.

### INFLUENCING POLICY

- Support the integration of broadband infrastructure into regional planning for economic development.
- Support the creation of innovative national online career tools.
- Encourage federal agency partnerships to foster common goals toward workforce development.

# Principle 8: Civic engagement

Residents should be easily able to interact electronically with community institutions, government agencies, and one another, to allow them to participate actively in community affairs.

Technology provides the means for people and government to engage with each other as never before. It can empower the community to find solutions to its issues and concerns; and it can help government institutions become more efficient and transparent. Communities need to take advantage of the opportunities provided by eGovernment where appropriate — using technology to foster civic engagement, while at the same time balancing transparency, efficiency, accessibility, and privacy concerns.

Community members can make use of technology to develop and promote a wide range of civic activities and connections that enrich public life while expanding the group of involved participants. The following goals aim to create increased opportunities for the public to participate in governance, by bridging officials and constituents online and by providing the means for people to voice their opinions and influence decisions.

## Goals

- Opportunities for the public to connect directly with each other, as well as with legislators and government agencies, in order to deliberate and make choices together to improve policy and administration.
- Online access to government services that is appropriate for users of all skill levels, that meets the language needs of the community, and that is available for use on a variety of devices.
- Technology that enhances government and institutional transparency in decision-making processes and outcomes.
- Stable and easy-to-use government financial and performance data that enhance accountability.

## Expanded goals

- Integrated online government services and information that meet interoperability standards for data.

- Government records and information that remain accessible, regardless of the continuing hardware and software changes that occur over time.
- Careful design of digital access to the justice system to improve convenience while protecting the privacy and security of users.
- Technology utilized to organize community events, to encourage volunteerism and youth participation, and to facilitate problem-solving for community concerns.
- Civic engagement and civic knowledge embedded in education and digital literacy training.

## Sample strategies

### INDIVIDUAL

- Provide feedback to government agencies about online services.
- Join — or start — community networks to communicate with others about community concerns.

### LIBRARIES, CBOs, AND OTHER COMMUNITY ANCHOR INSTITUTIONS

- Provide a central civic engagement portal for information to residents about local events and resources, as well as online government services.
- Encourage the use of blogs and notification tools so that libraries and CBOs that help people navigate public information can be kept updated with changes to government websites.
- Become "online town halls" for eDemocracy, for participants to shape public agendas and discuss public issues.

### LOCAL GOVERNMENT

- Provide citizens the ability to create "My eGovernment" to personalize their interaction with government agencies and officials.
- Educate citizens about their civic role; provide opportunities for them to interact with government agencies and officials using tools that fit individual or specific community needs.

- Encourage the private sector to work with open information to develop new applications and ways of using government data.
- Apply care to initial design, updates, and the frequency of redesign to minimize users' confusion and the need to re-familiarize themselves with government websites.

INFLUENCING POLICY

- Dedicate resources to develop open standards for government information.
- Promote the adoption of social media technologies that government can use to interact with residents.

## Principle 9: Public safety and emergency services

Communities can increase their emergency responsiveness through effective deployment of digital technologies, ensuring the public the best possible emergency preparedness.

Both residents and first responders need integrated communications systems to prepare for and respond quickly to emergencies and other public safety threats. Technology enables better ways to call for help, coordinate responses, and distribute information during emergencies. Technology can also be mobilized to prevent and investigate criminal activity and to empower residents to improve neighborhood safety. Harnessing this potential requires interoperable and resilient networks, with high bandwidth sufficient to handle imagery, real-time camera feeds, and mapping. The following goals reflect a need for coordinated, community-wide involvement in planning, preparing, and responding to emergencies and public safety threats.

### Goals

- Sufficient wireless broadband capacity for emergency responders to support secure, resilient, and redundant networks capable of sustaining emergency services throughout planning, preparing, responding, and recovering from an emergency.
- Interoperable emergency alert networks with redundancies across mobile, wireless, and wired networks via Common Alerting Protocols.
- Public libraries, schools, and other community institutions able to provide full digital access to residents or evacuees during emergencies.

## Expanded goals

- Technology networks that coordinate collective disaster and emergency preparation, response, and recovery.
- Digital tools for community-developed online content relating to public safety, emergency preparation, and response — for example, neighborhood disaster plans, information about special populations with stringent evacuation needs, and neighborhood crime watch groups.

## Sample strategies

### INDIVIDUAL

- Sign up for emergency text and email services offered by local government agencies.
- Create a neighborhood emergency alert network using social media technologies.

### LIBRARIES, CBOs, AND OTHER COMMUNITY ANCHOR INSTITUTIONS

- Coordinate emergency response beyond government.
- Provide neighborhood groups with online tools to coordinate safe passage for children and youth traveling to and from school.

### LOCAL GOVERNMENT

- Improve 911 systems to receive text, photos, and video from the public and to relay them to first responders.
- Provide online resources for residents to use for developing personal disaster-preparedness plans.

### INFLUENCING POLICY

- Support the development of national interoperable public safety wireless broadband networks.
- Support national efforts to ensure that broadband communications are preserved during emergencies.

# Principle 10: Health care

Communities should have the digital technologies necessary to support the health care needs of their populations, especially in areas with limited health care facilities, to afford all their members access to the best possible health care.

Digital technology provides opportunities for enhanced health care delivery and support. Connectivity between health care providers enables better and faster diagnosis by connecting local practitioners and hospitals with information and specialists around the world. Technology also enables better safety and outcomes for patients by enhancing communication between health care providers and patients, and by creating opportunities for better health education and dissemination of information. Technology can help realize efficiencies and cost-savings in health care delivery, improve patient care, and support independent living and management of health concerns. The following goals aim to ensure that residents are able to actively manage their own health, and that caregivers use technology to provide efficient health service delivery.

## Goals

- Broadband communication available for medical facilities, with sufficient capacity to support bandwidth-intensive telehealth applications.
- Secure systems for local medical professionals and community-based health clinics to share medical records among health care providers.
- Patient-centered design that allows patients easy access to online health information systems and medical records.
- Technology training offered to health care providers and patients to facilitate better health care.

## Expanded goals

- Careful transitioning to online health care resources and services, to ensure support for new users and non-users of digital technologies, and for those who lack access to technology.
- Platforms for secure, private online interaction with health care providers to handle routine questions and facilitate better communication.
- Consolidated online local health resources (maintained by health care agencies and providers) including information about health care providers.

## Sample strategies

### INDIVIDUAL

- Volunteer to help patients navigate online information at local hospitals and health clinics.
- Utilize online health resources to manage chronic illnesses and communicate with caregivers.

### LIBRARIES, CBOs, AND OTHER COMMUNITY ANCHOR INSTITUTIONS

- Provide access to electronic medical records and telehealth services through secure and private public access technology.
- Provide targeted training for using health technology.
- Provide training for the public on how to locate and evaluate health information.

### LOCAL GOVERNMENT

- Establish an information network to make public health information available through social media technologies.

### INFLUENCING POLICY

- Support efforts to establish common standards for sharing research and clinical data.
- Support efforts to ensure that health care delivery locations have access to sufficient bandwidth for high-demand applications.

# Principle 11: Quality of life

Individual members of a community should have access to technologies that promote social engagement and the pursuit of productive and creative interests.

Technology provides new opportunities for people to express themselves, enjoy activities with family and friends, and get support for personal problems. It provides raw materials to spark innovation and creativity. Access to online social activities, networks, forums, and information helps people lead more satisfying lives. The following goals reflect the ability of technology to foster relationships that support quality of life and well-being in digitally inclusive communities.

## Goals

- Interactive, high-quality multi-cultural content available through public libraries, museums, archives, and other cultural institutions.
- Programs that encourage vulnerable and diverse populations to develop local content and to participate in social networks.
- Intergenerational ties strengthened through technology-mediated interaction between youth and older residents.
- An enhanced sense of community, through encouraging the digital preservation and sharing of local history and contemporary culture that convey belonging and continuity.

## Expanded goals

- Community-based design mobilized for rapid development of high-quality local content.
- Opportunities for individuals to maintain ties to friends and family available through public access to social networking tools.

## Sample strategies

### INDIVIDUALS

- Help an older friend or relative connect to online support communities or communicate with distant family members.
- Connect with like-minded people around an interest area or hobby.

### LIBRARIES, CBOs, AND OTHER COMMUNITY ANCHOR INSTITUTIONS

- Maintain directories of locally produced content.
- Design a digital story project for collecting local history.

### LOCAL GOVERNMENT

- Provide funding for cultural institutions to develop local content.

### BUSINESS

- Use social networking to promote local recreational activities and events.
- Support crowd-sourcing development of new applications.

### INFLUENCING POLICY

- Advocate for use of social networking to facilitate respectful conversations among people with differing viewpoints.
- Support efforts to use technology to provide support for individuals and to foster relationships.

# 6. Getting started on digital inclusion

Every community will take its own path to become digitally inclusive, depending on how the community is structured and on its general styles of leadership and engagement. But certain steps will be similar for any community-building effort. Significant community challenges cannot be solved by any single community entity, or by individuals acting in isolation. Many people, across different institutions, must combine their efforts to make a difference that is important and lasting.

The following broad steps set out the basic path for making lasting changes.

## 1. Convene stakeholders

The list of institutions important to creating a truly inclusive community can be long and diverse:

- The local government or multiple local governments: county and city governments, as well as neighboring towns, will be essential players. Elected leaders and senior appointed officials have specific responsibilities for community planning, across a wide range of areas.
- Public agencies, especially the public library, are essential to the process. The library may be part of local or district government or may operate as an independent institution. Public libraries have become the central institutional player in providing public access to digital technologies. Other important public agencies include the public schools (K-12), institutions of higher learning (especially community colleges and adult education programs), economic development agencies, and public housing departments. The chief information officer is often the point person for digital management issues.
- Non-profit community-based organizations can be especially effective in reaching hard-to-serve populations. Such organizations vary widely from one community to another. Some operate with virtually no operating staff or resources, relying almost exclusively on volunteers. Other organizations are

extremely sophisticated and can have a very broad reach. Community-based organizations can be more nimble and experimental than government entities. Likely partners are non-profits that serve targeted populations within a community — including the poor or homeless, populations with disabilities, or people from specific ethnic cultures. Organizations that provide supportive housing, job training, and childcare can also reach residents who need access to digital technologies. Community foundations can serve as neutral conveners and as sources of initial funding.

- The business community includes many potential partners. Telecommunication companies have an obvious role. Major employers in need of trained employees may provide valued support. Chambers of Commerce and other business groups often recognize the economic imperatives for digital inclusion. Businesses play an obvious role in the economic development aspects of digital inclusion, and many businesses also incorporate inclusive activities as part of their civic and social involvement.

- Residents, individually or representing neighborhood or housing associations, can help ground the digital inclusion effort in reality. Engagement begins with becoming informed and raising issues of digital inclusion in local organizations. Residents' participation in committees and task forces can help institutions get a broader perspective; institutional and organizational leaders should expand resident participation by conducting surveys, forums, and workshops on site — where people live.

Such a diverse set of stakeholders will not magically come together. The process will require leadership that may arise from any sector — a catalyst to initiate the effort and engage the broad array of people who will make it succeed.

## 2. Develop a shared community understanding of digital inclusion

In an area as complex as digital inclusion, community stakeholders need to begin with a shared understanding of the needs and the goals.

- What does the term digital literacy mean for the community?
- What digital technologies are currently available, and to whom?
- Where are the gaps? Who is left out and at risk of being left behind?
- What are the most important community goals of digital inclusion: economic development, education, job training, health care, social connection?

The answers to these questions will vary by community. Part of the process of developing answers should be a "needs assessment," based on systematic data collection and analysis. Ultimately a shared vision should emerge from the joint learning process — a vision that describes where the community wants to be in a technology-driven world.

## 3. Create a community action plan

Anchored by the shared vision, communities need to develop an actionable plan, with specific goals, measures of success (or "benchmarks"), timelines, and assignment of responsibility. Some communities will make large comprehensive plans; others will create more narrowly targeted plans that utilize their limited resources as effectively as possible. Either approach can work.

## 4. Implement the plan

Communities will need to develop mechanisms to generate the resources to execute the plan, drawing on government appropriations, business contributions, or philanthropy, or some combination of these sources. It is important to ensure some early successes that can be celebrated and promoted, to create awareness and build momentum. A well-structured monitoring effort will allow community stakeholders to provide mutual support, encouragement, and accountability.

## 5. Evaluate and revise the plan

Change is the only constant, in communities as well as in digital technologies. Digital devices and transmission capabilities, workforce requirements, economic drivers, and population demographics are all constantly changing. Change may be incremental and difficult to recognize. Or it may be shockingly dramatic, as when a major employer leaves — or one arrives. As circumstances change, implementation plans must change as well.

In today's information-based economy, digital inclusion is not a simple, one-time checkbox. Digital inclusion will require sustained effort, ongoing evaluation, and a willingness to revise the community's plans and strategies.

# Appendix 1. Partner information

## Institute of Museum and Library Services

The Institute of Museum and Library Services is the primary source of federal support for the nation's 123,000 libraries and 17,500 museums. The Institute's mission is to create strong libraries and museums that connect people to information and ideas. The Institute works at the national level and in coordination with state and local organizations to sustain heritage, culture, and knowledge; enhance learning and innovation; and support professional development. To learn more about the Institute, please visit www.imls.gov.

## University of Washington

The Technology & Social Change Group (TASCHA) at the University of Washington Information School explores the design, use, and effects of information and communication technologies in communities facing social and economic challenges. With experience in 50 countries, TASCHA brings together a multidisciplinary network of social scientists, engineers, and development practitioners to conduct research, advance knowledge, create public resources, and improve policy and program design. Our purpose? To spark innovation and opportunities for those who need it most. Learn more at tascha.uw.edu.

## International City/County Management Association

ICMA, the International City/County Management Association, advances professional local government worldwide. Our mission is to create excellence in local governance by developing and advancing professional management to create sustainable communities that improve lives worldwide. ICMA provides member support; publications; data and information; peer and results-oriented assistance; and training and professional development to nearly 9,000 city, town,

and county experts and other individuals and organizations throughout the world. The management decisions made by ICMA's members affect millions of individuals living in thousands of communities, from small villages and towns to large metropolitan areas.

# Appendix 2. Partner team members

## Digital Inclusion Working Group

| | |
|---|---|
| Steve Albertson | Community Voice Mail |
| Mary Carr | Spokane Community College |
| Mark Cooper | Consumer Federation of America |
| Cathy DeRosa | OCLC |
| Jon Gant | University of Illinois |
| Chris Gates | Philanthropy for Active Civic Engagement (PACE) |
| Martín Gómez | Los Angeles Public Library |
| Link Hoewing | Verizon |
| John Horrigan | TechNet |
| David Keyes | City of Seattle |
| Mike Lee | AARP |
| Traci Morris | Homahota Consulting |
| Mare Parker O'Toole | Medfield Public Library |
| Frances Roehm | Skokie Public Library |
| Jane Smith Patterson | e-NC Authority |
| Sarah Washburn | TechSoup |

## Digital Inclusion Network

| | |
|---|---|
| 4-H National Headquarters | Jim Kahler |
| Access Humboldt | Sean McLaughlin |
| Access to Justice | Don Horowitz |
| Alaska Children's Trust / Friends of the Alaska Children's Trust | Panu Lucier |
| Alcatel-Lucent | Greg Kovich |
| American Association of Museums | Zeinab Ulucan |
| American Foundation for the Blind | Paul Schroeder |
| American Library Association | Alan Inouye |
| Arizona Telemedicine Program | Mike Holcomb |
| Association of African American Museums | Bill Billingsley |
| Balboa Park Online Collaborative | Perian Sully |
| Bill & Melinda Gates Foundation | Karen Archer Perry |
| Blacksburg Electronic Village | Brenda van Gelder |
| Blandin Foundation / Treacy Information Services | Ann Treacy |
| Boys & Girls Clubs of Tennessee | John K. Berry |
| California Academy of Sciences | Elizabeth Babcock |
| California State Library | Stacey Aldrich |
| Center for Media Justice | Amalia Deloney |
| Cleveland Public Library | Felton Thomas |
| Comcast | Juan Otero |
| Communication Service for the Deaf | Benjamin J. Soukup |
| Computers for Youth | Elizabeth Stock |
| Council of State Governments | John Mountjoy |
| Dell | Kerry Murray |
| Department of Labor, Center for Faith-based & Neighborhood Partnerships | Rev. Phil Tom |
| E-Democracy.org | Steve Clift |

| | |
|---|---|
| EdLab | Karen Peterson |
| Georgetown County Library | Dwight McInvaill |
| Georgia Division of Archives and History | David Carmicheal |
| Global Center for Cultural Entrepreneurship | Alice Loy |
| Google | Jenn Taylor |
| Grand Rapids Community Media Center | Laurie Cirivello |
| Greater Auburn-Gresham Development Corporation | Ernest Sanders |
| Hardy Telecommunications | Derek Barr |
| Indianapolis Museum of Art | Ron Stein |
| Instructional Technology Council | Christine Mullins |
| Intel | Rick Herrmann |
| Iowa Statewide Interoperable Communications System Board | Jim Bogner |
| J. Paul Getty Museum | Nik Honeysett |
| Knight Foundation | Judith Kleinberg |
| Lyrasis | Kate Nevins |
| Maine State Library | Linda Lord |
| Miami Dade Public Library System | Raymond Santiago |
| Microsoft | Andrea Taylor |
| NAACP | Hilary Shelton |
| National Association of Counties | Jackie Byers |
| National Indian Telecommunications Institute | Karen Buller |
| National Information Standards Organization | Todd Carpenter |
| National Internet2 K20 Initiative | James Werle |
| National Library Service for the Blind and Physically Handicapped | Jennifer Sutton |
| Net Literacy | Don Kent |
| New York State Library | Mary Linda Todd |
| Nez Perce Tribe | Christina St. Germaine |

| | |
|---|---|
| Nonprofit Technology Network (NTEN) | Holly Ross |
| Oklahoma State Library | Susan McVey |
| Partnership for a Connected Illinois | Debbie Strauss |
| Pew Internet & American Life Project | Lee Rainie |
| Public Library Association | Barb Macikas |
| Rainbow PUSH Coalition | Kimberly Marcus |
| Rhode Island Economic Development Corporation | Stu Freiman |
| Rural School and Community Trust | Rachel Tompkins |
| Rural Telecommunications Congress | Greg Laudeman |
| Saint Paul Neighborhood Network | Mike Wassenaar |
| Saint Regis Mohawk Tribal Council | Jamie Bay |
| ShinyDoor | Angela Siefer |
| Syracuse University | David Lankes |
| Telecommunity Resource Center | Gene Crick |
| Texas State Library | Peggy Rudd |
| Texas State Library and Archives Commission | Chris Jowaisas |
| Transmission Project | Belinda Rawlins |
| University of Illinois | Colin Rhinesmith |
| University of Maryland | John Bertot |
| University of Texas at Austin | Sharon Strover |
| University of Washington | Miranda Belarde-Lewis |
| University of Wyoming | W. Reed Scull |
| Urban Libraries Council | Susan Benton |
| VisionTech360 | Bill Gillis |
| Weeksville Heritage Center | Pamela Green |
| Youth Policy Institute | Sarah Serota |

# Appendix 3. Summary of research on digital inclusion

Internet connectivity offers a range of important benefits for individuals and communities. It increases equal access to opportunities such as jobs and work force training, enables people to find information about their health, spurs civil engagement, and supports other productive activities. Recognizing the Internet's growing ubiquity, there have been many efforts to reduce the barriers to access to information and communication technologies (ICTs). Initially the focus was on removing obvious barriers to access — a technology-centric approach concerned mainly with lowering the cost of entry into the digital marketplace. Lately there is growing recognition that the more significant barriers include such factors as attitudes, interests, and abilities.

In view of this shift in understanding, current initiatives — instead of aiming to bridge a "digital divide" — are increasingly directed toward fostering "digital inclusion." The technology-centric term digital divide separates people into haves and have-nots; digital inclusion is an all-encompassing term, focused on equity within three areas: access, digital and information literacy, and relevant content. Digital inclusion recognizes that facilitating participation in digital life is an objective that will require ongoing, thoughtful action, including making available the necessary technology. This people-centric perspective will accordingly call for an ongoing assessment of community conditions and needs. The *Proposed Framework for Digitally Inclusive Communities* ("Framework") aims to be a tool for such assessment.

This section provides an overview of the articles, reports, and other resources that informed the creation of the Framework. The review covers materials in four subject areas:

1. Self-assessment models
2. Indicator systems
3. Local and international digital inclusion policy initiatives
4. Reasons for non-adoption (and the unmet needs of those without digital access)

## Assessment models

Three main assessment models helped inform the structure of the Framework: the LEED Certification Rating System (U.S. Green Building Council), Tree City USA (Arbor Day Foundation), and the National Information Standards Organization (NISO) Framework of Guidance for Building Good Digital Collections. These models share a number of design strengths. They are aspirational, flexible, and easy to understand, enabling grassroots action towards specific goals and also fostering collaboration among organizations. That is, these models emphasize a "bottom-up" approach.

More specifically, each model provides a strong overall purpose, an easily comprehensible structure and categories of focus, and specific guidelines for meeting the overall goals of the model. They differ in levels of prescriptiveness, elaborateness, and technical specifications. For example, the LEED system has strict requirements for each level of certification, and applicants are able to "self-select" which level they feel qualified for and choose among a menu of options to achieve it. In contrast, the Tree City USA certification system has just four criteria, which are straightforward and relatively easy to achieve. The *Proposed Framework for Digitally Inclusive Communities* aims for a clear structure and targeted goals that allows for flexibility in implementing strategies.

## Indicator systems

Indicator systems provide useful guidance for achieving the right level of specificity for the Framework; they also help inform how to measure progress across many different types of communities. Shared indicators are used widely in social, economic, environmental, health, and educational policy domains. They are usually developed by a government or nonprofit sponsoring organization, typically beginning with a process of soliciting community input in determining the indicators to track. An example is the Boston Indicators Project — a set of tools for organizations to track trends and measure progress towards such community goals as improved health, greater literacy, and reduced poverty.

Indicator systems have many advantages; they allow shared data collection and can produce useful quantitative data on progress toward community goals. However, the level of specificity in these systems was considered to be beyond the scope of this Framework. Communities will need to begin by developing their own working definition of digital inclusiveness and by setting their own goals for achieving that objective — and developing indicators is a later step.

Nevertheless, the participatory process used in developing indicator systems was useful in guiding the process of developing the proposed Framework. For example, the Burlington Legacy Project engaged citizens of Burlington, Vermont in an inclusive "listening and learning" process to set sustainability goals for the city's future. Other indicator systems relied on experts and representatives from different sectors to help shape the structure and content of the indicators before validating them with a community. Work on the proposed Framework combined these two approaches. A diverse group of experts from many different sectors assembled to discuss all of the elements, engaging in a serial review process as the proposed Framework was developed. As a follow-on step, the proposed Framework will be introduced to select communities to hear from the general public and from individuals and organizations who would be responsible for implementing it — in a "teaching, listening, and learning" process.

## Local and international policy initiatives

The initial elements of the Framework — the vision, principles and goals — emerged from an examination of local and international policy initiatives around digital inclusion. Although each digital inclusion policy initiative is shaped by the specific concerns of the particular community, all share many common goals and strategies. Most commonly, they highlight the themes of access, relevant content, and information literacy; other shared areas of concern are infrastructure, civil engagement, and affordability.

- Access goals relate to the software and hardware that enables connectivity; they may also relate to affordability and infrastructure.
- Providing local information for and by local residents is part of relevant content, and is considered important for creating interest in digital life; it is also an aspect of eGovernment as well as civic engagement in policy initiatives.
- Affordability refers to costs, usually to individual users of technology.

The definitions of infrastructure and information literacy vary across policy initiatives. Infrastructure initiatives in the U.S. have — until recently —been primarily at the state or local level; they set network capacity goals based on existing local conditions. Non-U.S. initiatives often set more ambitious infrastructure targets, as in bringing broadband or wireless connectivity to rural populations. Information literacy comprises a wide range of definitions rather than a standardized skill-set. For example, U.K. information literacy efforts focus

on job-related applications, whereas U.S. efforts emphasize the skills needed to conduct job searches on the Internet. In San Francisco, basic information literacy includes both these objectives. (Indeed, San Francisco's ambitious initiative, inspired by its nearby technological hub, was designed to enable its citizens to become creators and innovators of Internet content as the long-term goal of information literacy.) Most definitions of information literacy tend to overlook the growing interest in the "fun" aspects of Internet connectivity — although surveys indicate that people want to participate in online social networks, including playing games. More recent discussions embrace these and other expansive understandings of information literacy.

In developing the proposed Framework, the common focus areas and goals were gleaned from these different initiatives. Important goals also came from the National Broadband Plan, addressing inequalities in access, planning for future expansion, and building social and economic well-being at the local level. The goals were further shaped to reflect a forward-looking, optimistic vision of how a digitally inclusive community may be experienced by its residents.

## Reasons for non-adoption

The explosive growth in the use of information and communication technologies in everyday life, while offering many positive benefits, has also left many Americans behind. Research shows that technology adoption and digital literacy levels differ according to attitudes about the Internet, income, education level, disability, and age. In gathering information for the proposed Framework, an important element was to incorporate an understanding of non-adopters, embedding goals that address their concerns.

There are a number of barriers to adoption. Cost is a major barrier: low-income homes are less likely to have at-home access to the Internet, due in part to high Internet subscription rates. Hardware and software costs can also result in non-adoption, or cause users to become "digital drop-outs." The elderly and people with disabilities are also less likely to have at-home Internet access or to use public access computers. To address these barriers, research documents three strategies: literacy classes, tiered (or reduced) Internet subscription rates, and outreach efforts.

Classes for digital literacy (covering computer ownership and maintenance) help new users gain confidence as well as skills; more advanced classes that introduce specific applications provide opportunities for embedding new information

literacy skills. Reduced, subsidized, or tiered subscription rates make access affordable at home (and at community institutions).

Creating or improving outreach is important especially to publicize such lower-cost Internet options, digital literacy programs, and related digital inclusion efforts. In many initiatives, implementation has included outreach in the earlier stages of the process, inviting residents and business to articulate from the start what specifically matters to them.

According to many studies, however, the primary reason for non-adoption is not cost but lack of interest. Research distinguishes several groups, based on different attitudes: those who do not recognize Internet access as a need; those who see access as a need, but who face financial barriers; and those who are inhibited by non-financial barriers. In order to counteract lack of confidence, fear, and mistrust, the benefits of connectivity need to be properly communicated, by advocating for information and digital literacy and by helping people understand the significance of being able to do things online.

Lack of relevant content is another reason for non-adoption. Research suggests that if non-adopters fail to "see" a place for themselves on the Internet, with content that is relevant to them, their interest wanes. For example, some non-English speakers cannot find materials to read online. Even when language is not a barrier, local content may be lacking. One article reported that people searching for ads for local businesses were unable to locate that content. There is a basic need to connect offline experiences to online content.

In rural areas that currently rely on dial-up access, adoption continues to be a problem. Because telecommunications providers lack a financial incentive to upgrade their services, and public funding is inadequate to spur infrastructure investments, many eager broadband adopters are left wanting and are effectively excluded from digital life because dial-up speeds are no longer adequate to be considered "true access."

Finally, the hardest to reach populations are the elderly, the poor, and the less educated, followed by racial or ethnic minorities and people with disabilities. Targeted outreach to these populations is essential.

These differences in reasons for non-adoption, along with the recognition that building digital literacy skills happens over a long period of time, lie behind many of the goals in the proposed Framework. Examples include the focus on providing digital and information literacy instruction, and ensuring that transitions to online applications (as in eGovernment and Health) take into account the needs of new users of digital technologies, people with disabilities, and others with barriers to

access. The proposed Framework also emphasizes the need to build awareness of the benefits of connectivity (the demand side), in addition to supplying infrastructure and providing more access points (the supply side). Greater demand will ensure broader use of improved resources and sustained interest in digital inclusion initiatives.

## Conclusion

The review of self-assessment models, indicator systems, public policy initiatives, and digital inclusion research covered over 240 resources (see Bibliography). This extensive review helped define the structure and scope of the proposed Framework, while informing its specific principles, goals and strategies.

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This bibliography is divided into four topic areas: assessment models; indicator systems; local and international policy initiatives on digital inclusion; and reasons for non-adoption.

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ICMA
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# Building Digitally Inclusive Communities

*A Guide to the Proposed Framework*

INSTITUTE of Museum and Library SERVICES

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# What is digital inclusion — and why does it matter?

Digital inclusion is the ability of individuals and groups to access and use information and communication technologies. Digital inclusion encompasses not only access to the Internet but also the availability of hardware and software; relevant content and services; and training for the digital literacy skills required for effective use of information and communication technologies. The cost of digital exclusion is great. Without access, full participation in nearly every aspect of American society — from economic success and educational achievement, to positive health outcomes and civic engagement — is compromised.

*This guide is designed to help communities attain the vision of digital inclusion.*

## What does digital inclusion mean for people in a community?

All people, businesses, and institutions will have access to digital content and technologies that enable them to create and support healthy, prosperous, and cohesive 21st century communities.

Specifically, digital inclusion means that:

- All members understand the benefits of advanced information and communication technologies.
- All members have equitable and affordable access to high-speed Internet-connected devices and online content.
- All members can take advantage of the educational, economic, and social opportunities available through these technologies.

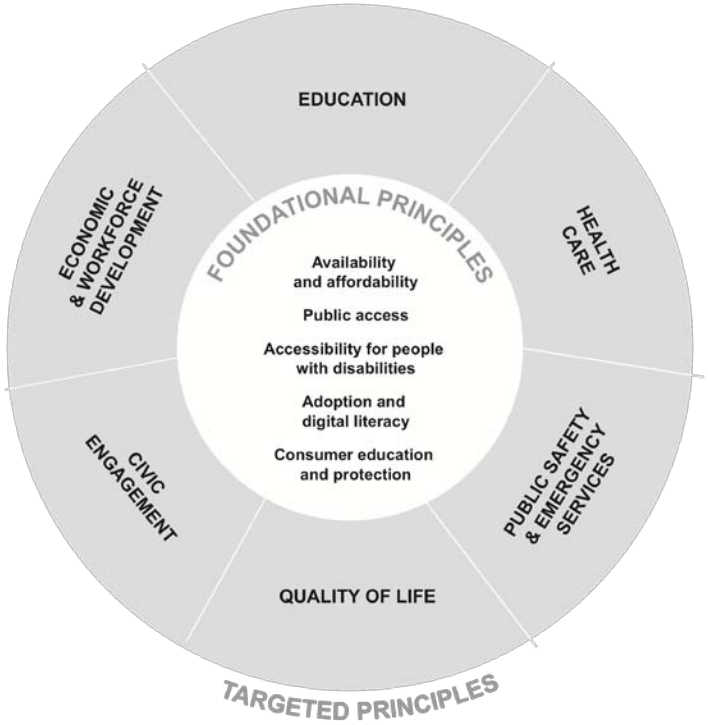
Not all members of a community benefit equally, and some communities have been left out altogether. Recognizing the cost to American competitiveness in a global economy, Congress directed the Federal Communications Commission (FCC) to develop a plan to ensure that every American has "access to broadband capability." Issued in March 2010, the *National Broadband Plan* recommended that the Institute of Museum and Library Services (IMLS) take the lead in supporting libraries and community-based organizations as they improve digital inclusiveness.

This guide was developed with input from over one hundred organizations and individuals with deep knowledge about public access technology and the diverse information needs of communities. It presents a set of overarching principles (and associated goals) and identifies the key characteristics of organizations and communities that foster digital inclusion.

# Principles of digital inclusion

Five foundational principles describe how a community supports its members in accessing and using digital technologies.

In addition, a set of targeted principles articulate how the foundational principles will be experienced in specific areas of activity and community life (see diagram).



# Foundational principles

## Principle 1: Availability and affordability

Communities need reliable and affordable access to broadband technology infrastructure in order to be fully engaged and competitive in today's information-based world.

GOALS

- Access to high speed Internet in every household, business, and community anchor institution at actual download speeds that meet or exceed the service goals and milestones set by the FCC.
- Pricing structures that enable businesses, institutions, and households to afford access to digital technologies.
- Uniform Internet Service Provider (ISP) pricing information that is accessible and usable for consumers to compare plans available in the community.
- Competitive deployment of infrastructure through right-of-way policies that remove barriers to market entry and system upgrades.

## Principle 2: Public access

In a world connected by technology, all people, regardless of income, need access to information and communication technologies in order to be fully engaged members of society, both economically and socially.

GOALS

- Sufficient, convenient free access to computers, Internet, wireless networks and other communication technologies to support the needs of residents, workers, and visitors.
- Public access technology in safe facilities, with adequate levels of privacy, security, and accessibility for people with disabilities.
- Broad community awareness of the availability of public access technologies.

## Principle 3: Accessibility for people with disabilities

Communities should ensure the full participation of all their members, by embedding accessibility to digital technology for people with disabilities throughout their institutions, processes, and public awareness efforts.

GOALS

- Technology managed in ways that ensure access by people with disabilities, including, at a minimum, full compliance with the letter, intent, and spirit of accessibility laws and regulations.
- Businesses and community-based organizations equipped with the skills and know-how to comply with accessibility standards and design technology-based services using universal design.
- Assistive technologies available at public access locations.
- Disabled persons equipped with the skills and assistive devices necessary to access technology and create content.

## Principle 4: Adoption and digital literacy

Beyond having access to technologies, people, businesses, and institutions need to understand digital technologies and how to use them effectively to achieve their educational, economic, and social goals.

GOALS

- Digital literacy training needs and assets in the community identified and evaluated.
- Digital literacy training provided through formal classes and real-time virtual help, as well as through one-to-one assistance for individuals, business, and institutions.
- Information literacy instruction embedded in all aspects of curriculum for K–12 and higher education, as well as in life-long learning activities.
- Training and assistance in finding information and evaluating resources, tailored for the needs of a community.

## Principle 5: Consumer education and protection

Consumers — both individual and institutional — need accurate, unbiased information to understand the technology options available to them, including how to buy and maintain equipment and how to safely navigate the digital world.

GOALS

- Training for consumers on the purchase, maintenance, and repair/recovery of technology equipment and services.
- Strategies for training and educating community members about safeguarding personal information, using parental controls, protecting vulnerable populations from cyber-bullying, maintaining systems free from viruses, and protecting against other forms of online abuse.
- Privacy policies adopted by businesses and government that are visible, easily accessible, and comprehensible to consumers.
- Local law enforcement agencies equipped with strategies and authority to pursue cybercriminals while protecting individual civil rights.

# Targeted principles

## Principle 6: Education

Educational institutions should ensure that students have the digital skills to fill the jobs of today and tomorrow, and to reap the potential rewards of lifelong digital learning.

GOALS

- Sufficient bandwidth to ensure that schools and other educational institutions can support current and future demand for broadband-enabled technology.
- Technology embedded in curriculum development and instruction, in both formal K-12 and post-secondary institutions and in informal educational activities, to prepare students for 21st century opportunities and challenges.
- Coordination between schools, libraries, and community-based technology centers to maximize delivery of in-school and out-of-school student learning tools.

## Principle 7: Economic and workforce development

Technology is a powerful engine of innovation and economic growth in today's world. In order for individuals and businesses to succeed in this environment, communities need to foster the mastery of 21st century skills and encourage the use of technology for economic development.

GOALS

- Technology training targeted to employers' requirements and to the needs of the workforce in order to promote economic development and create job opportunities.
- Public-private partnerships and cross-agency collaborations to make use of workforce training capacity of public libraries and community-based organizations.
- Development of small businesses and local entrepreneurs by better supporting existing eCommerce and eGovernment tools.

## Principle 8: Civic engagement

Residents should be easily able to interact electronically with community institutions, government agencies, and one another, to allow them to participate actively in community affairs.

GOALS

- Opportunities for the public to connect directly with each other, as well as with legislators and government agencies, in order to deliberate and make choices together to improve policy and administration.
- Online access to government services that is appropriate for users of all skill levels, that meets the language needs of the community, and that is available for use on a variety of devices.
- Technology that enhances government and institutional transparency in decision-making processes and outcomes.
- Stable and easy-to-use financial and performance data that enhance accountability.

## Principle 9: Public safety and emergency services

Communities can increase their emergency responsiveness through effective deployment of digital technologies, ensuring the public the best possible emergency preparedness.

GOALS

- Sufficient wireless broadband capacity for emergency responders to support secure, resilient, and redundant networks capable of sustaining emergency services throughout planning, preparing, responding, and recovering from an emergency.
- Interoperable emergency alert networks with redundancies across mobile, wireless, and wired networks via Common Alerting Protocols.
- Public libraries, schools, and other community institutions able to provide full digital access to residents or evacuees during emergencies.

## Principle 10: Health care

Communities should have the digital technologies necessary to support the health care needs of their populations, especially in areas with limited health care facilities, to afford all their members access to the best possible health care.

GOALS

- Broadband communication available for medical facilities, with sufficient capacity to support bandwidth-intensive telehealth applications.
- Secure systems for local medical professionals and community-based health clinics to share medical records among health care providers.
- Patient-centered design that allows patients easy access to online health information systems and medical records.
- Technology training offered to health care providers and patients to facilitate better health care.

## Principle 11: Quality of life

Individual members of a community should have access to technologies that promote social engagement and the pursuit of productive and creative interests.

GOALS

- Interactive, high-quality multi-cultural content available through public libraries, museums, archives, and other cultural institutions.
- Programs that encourage vulnerable and diverse populations to develop local content and to participate in social networks.
- Intergenerational ties strengthened through technology-mediated interaction between youth and older residents.
- An enhanced sense of community, through encouraging the digital preservation and sharing of local history and contemporary culture that convey belonging and continuity.

# Getting started on digital inclusion

The creation of a digitally inclusive community requires the involvement of all sectors of the community — and any of them can provide leadership and be a catalyst for action. Every community will take its own path to become digitally inclusive, and the following steps are likely to be part of the process.

## 1. Convene stakeholders

- The local government, including elected and appointed officials.
- Public agencies, especially the public library. Other important public agencies include the public schools (K–12), institutions of higher learning, economic development agencies, and public housing departments.
- Non-profit community-based organizations. Likely partners are non-profits that serve targeted populations within a community, and organizations that provide supportive housing, job training, and childcare.
- The business community: telecommunication companies; major employers in need of trained employees; Chambers of Commerce and other business groups.

- Residents, individually or representing neighborhood or housing associations. Residents' participation in committees and task forces can help institutions get a broader perspective.

## 2. Develop a shared community understanding of digital inclusion

- What does the term digital inclusion mean for the community?
- What digital technologies are currently available, and to whom?
- Where are the gaps? Who is left out and at risk of being left behind?
- What are the most important community goals of digital inclusion: economic development, education, job training, health care, social connection?

An initial "needs assessment" — based on systematic data collection and analysis — can lead to a shared vision of where the community wants to be in a technology-driven world.

## 3. Create a community action plan

Create a community action plan anchored by the shared vision (as detailed in the *Proposed Framework Report)* — with specific goals, measures of success (or "benchmarks"), timelines, and assignment of responsibility.

### 4. Implement the plan

Implement the plan by generating the needed resources — drawing on government appropriations, business contributions, philanthropy, or some combination of these sources. Create some early successes that can be celebrated to create awareness and build momentum.

### 5. Evaluate and revise the plan

Digital devices and transmission capabilities, workforce requirements, economic drivers, and population demographics are all constantly changing. As circumstances change, implementation plans must change as well.

# Learn more

Want to learn more about building digital inclusion in your community? Up-to-date information on this initiative is provided at *imls.gov*. And all the resources listed below, as well as a list of the individuals and organizations that contributed to this guide, can be found at the Digital Inclusion Project website: *tascha.uw.edu/inclusionframework*.

The *Proposed Framework Report* is the companion report for this guide :

*Proposed Framework for Digitally Inclusive Communities: Final Report* (Institute of Museum and Library Services, 2011). The report explains how the proposed framework and guide were developed, and gives additional details about the principles and goals. It outlines next-stage "expanded goals" for each of the principles as well as sample strategies, and includes a comprehensive bibliography.

You may also want to explore these influential documents:

*Connecting America: The National Broadband Plan* (Federal Communications Commission, 2010). The technical and national aspects of broadband availability.

*U.S. Lags Behind: Why It Will Be Hard to Close the Broadband Divide* (John Horrigan, 2007). Reasons for non-adoption – and the need for a comprehensive framework.

*Digital Inclusion: Measuring the Impact of Information & Community Technology* (Mike Crandall & Karen Fisher, 2009). Overview of digital inclusion and public access to technology.

*21st Century Skills, Education & Competitiveness: A Resource & Policy Guide* (Partnership for 21st Century Skills, 2008). The importance of digital literacy skills.




## ABOUT THE PARTNERS

**The Institute of Museum and Library Services** is the primary source of federal support for the nation's 123,000 libraries and 17,500 museums. The Institute's mission is to create strong libraries and museums that connect people to information and ideas. The Institute works at the national level and in coordination with state and local organizations to sustain heritage, culture, and knowledge; enhance learning and innovation; and support professional development. To learn more about the Institute, please visit www.imls.gov.

**University of Washington**
The Technology & Social Change Group (TASCHA) at the University of Washington Information School explores the design, use, and effects of information and communication technologies in communities facing social and economic challenges. With experience in 50 countries, TASCHA brings together a multidisciplinary network of social scientists, engineers, and development practitioners to conduct research, advance knowledge, create public resources, and improve policy and program design. Our purpose? To spark innovation and opportunities for those who need it most.

**ICMA, the International City/County Management Association,** advances professional local government worldwide. Our mission is to create excellence in local governance by developing and advancing professional management to create sustainable communities that improve lives worldwide. ICMA provides member support; publications; data and information; peer and results-oriented assistance; and training and professional development to nearly 9,000 city, town, and county experts and other individuals and organizations throughout the world. The management decisions made by ICMA's members affect millions of individuals living in thousands of communities, from small villages and towns to large metropolitan areas.

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## DOWNLOAD THE COMPANION REPORT

*Proposed Framework for Digitally Inclusive Communities: Final Report* — available at tascha.uw.edu/digital-inclusion-framework