

The Wired Village: Building Communities and Improving Government Services Through Advanced Telecommunications and Information Networks

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Executive Summary

A sizable gap exists between the vision of what telecommunications and information processing networks can provide and what they currently deliver. Some people already have accrued benefits from a wired community and many embrace much touted concepts of “personal empowerment” and “frictionless commerce.” However, a greater number of people remain skeptical, and many consider the costs of becoming part of a wired community greater than the perceived benefits. The full payoff to individuals and communities can occur if and only if both the services offered and usage reach a critical mass.

This White Paper examines the role of federal, state and local governments in stimulating the supply and use of on-line networks. Operating within current budget levels, governments can serve as an essential catalyst by operating as an “anchor tenant” on various networks, particularly ones serving specific localities. As well, governments should look to using networking as a more effective vehicle for delivering education, social services, job placement, licensing, etc. Just about any service government provides in a direct, physical manner, e.g., walk-in permit applications at a central location, can be mediated via electronic networks and offer faster, better, smarter, cheaper and more convenient service.

* Professor of Telecommunications, Penn State University, 105-c Carnegie Building, University Park, PA 16802 +1 814 863-7996; email: rmf5@psu.edu; The author gratefully acknowledges the financial support provided by Nortel Networks for this paper.

Much of the public policy debate about access to the vast opportunities in on-line networking has focused on affordability, and the comparative disadvantages stemming from differences in income, education and location. While these factors certainly matter, the White Paper considers the impact of other important factors, including computer literacy, perceptions of value in networking and the extent to which governments have used funding to promote the on-line availability of the services they offer. A longstanding multi-billion dollar universal service funding regime has developed primarily to provide financial subsidies to make telecommunications services affordable to rural, elderly and poor citizens. But an equally important tactic involves the development of strategies to encourage an interest in, and the ability to access on-line services. In this pursuit, governments do not have to spend more money. Instead they have to consider more timely and effective ways for delivering existing services and to explore what new services on-line networks can provide.

Governments can stimulate consumer demand for advanced telecommunications and information networks by becoming sponsors, early adopters and facilitators of services that enhance one's quality of life. For some, governments can achieve these objectives simply by eliminating some of the inconvenience triggered by necessary, but routine and frequent transactions with citizens. On-line access to a user-friendly, municipal government World Wide Web page on the Internet offers the convenience of 24 hours a day, seven days a week access, with no lines, transportation problems and other irritations. For other citizens, access coupled with desired content and services can make a difference in one's life and sense of place in the community. For these citizens, governments can team with other community institutions, such as public broadcasters, newspapers, museums, clinics, employment agencies, libraries, schools,

airport authorities, tourism and community development groups, etc. to amalgamate desirable content and to make that content more accessible.

The White Paper endorses a strategy where governments trigger demand for advanced services and widespread deployment of community networks by offering expanded and enhanced services. These “must have” applications provide the inducement for citizens to make sizeable investments of time, money and effort. As well these services stimulate the development of advanced, broadband networks that improve the quality and speed of access. The pull of attractive services, and stimulated consumer demand can achieve more than simply pushing the promises offered by new technologies.

I. Introduction: Reaching Critical Mass in the Demand for Advanced Telecommunications and Information Services

Visions of an Information Age economy contemplate “empowerment” of individuals, companies and communities as networks offer greater efficiency, “frictionless” transactions and faster, better, smarter, more convenient services. This vision correctly recognizes that information processing and telecommunications technologies offer the twin consumer benefit of increasing value and lower costs over time. But these technologies are expensive to deploy and require users to devote significant time, money and effort to use them effectively. Understandably, both providers and prospective users balk at making investments unless and until they can predict a timely and worthwhile payoff.

Currently the much touted Information Age has only begun to offer significant quality of life enhancements to the majority of people. Limited success in delivery so far does not mean that advanced telecommunications and information processing technologies cannot ever match performance with what has been promised. Rather, it means that currently companies cannot easily make a business case for immediate and widespread deployment of cutting edge

technologies, e.g., fiber optic cable networks directly to all businesses and residences. Instead we see the use of intermediate, network retrofits like cable modems and digital subscriber links deployed primarily in urban and upscale neighborhoods. While a significant improvement over conventional, dial up access using the public switched telephone network, these technologies should be considered transitional relative to what can be provided. Worse yet, the current reach of these technologies exacerbates, rather than eases concerns about access to advanced telecommunications and information services.¹ Most people only have access to dial up services, or see little benefit in using the advanced services available even as others, particularly in offices, college campuses and government facilities see how these services improve their productivity, leisure and quality of life.

Whether an individual or business pursues advanced telecommunications and information services appears to depend more on the perceived payoff and less on factors like income, education and location more traditional gauges of access parity. Put another way, strategies for promoting more widespread demand for and supply of advanced services appears to depend more on the services available and less on traditional assumptions about the need for government funding to abate unequal access. Telecommunications service providers and their customers have contributed over \$5 billion dollars annually to achieve universal telecommunications service.² Few people question whether social justice supports governments undertaking such a mission. However some question whether the current method achieves the best possible outcome particularly in light of the growing importance of telecommunications and information processing to economic development.

Projections of increasing Internet-mediated commerce and communications have created a growing sense of urgency that federal, state and local governments should take more

aggressive steps to help bridge the gap and to devise a more effective process for doing so. The gap may have grown wider and the stakes higher than ever before, because access to advanced telecommunications services can enhance productivity, quality of life and a sense of community. Reducing gaps and stimulating use does not require more government funding. Rather it requires new thinking on how to stimulate the development of services that people require, and in particular the ones local governments provide.

Reshaping promotional efforts in terms of access to advanced telecommunications and information services, requires greater attention to what governments can do as providers of essential services. To improve their outreach and the realization of several public service missions, governments should work to reduce the gap in type and quality of access available and used by residential consumers on one hand and users in commercial, government and business locations on the other hand. Even well-to-do residential consumers may make do with slower and less convenient access technologies, despite the availability of “off the shelf” technology providing advanced, broadband services. Absent compelling content and services, consumers will tolerate inferior access.

This White Paper will consider how to improve public demand for, and access to advanced telecommunications and information services. Heretofore, the measure of progress in promoting greater access involves a calculation of how many people and households have access to Plain Old Telephone Service (“POTS”), conventional dial up telephone service. Now access to Pretty Advanced New Services (“PANS”) matters, because high speed, digital broadband services provide the basis for enhancing individual welfare and national competitiveness in an increasingly global, information-driven economy. Recognizing that little support exists for even higher universal service contributions from telephone subscribers, the White Paper proposes a

straightforward strategy, requiring no additional funding and emphasizing the development of “must have” telecommunications and information processing applications and the commensurate computer skills necessary to access these services.

This White Paper suggests that achieving a universal POTS and PANS service mission has less to do with the dissemination or “push” of technology down to consumers and more the need to stimulate consumer demand or “pull.” Likewise the White Paper does not suggest that governments need to order even greater subsidies, or to reallocate more funds to support access. Absent sufficient reasons to pay additional money and to acquire the skills necessary to master the requirements of broadband, digital services, most consumers will make do with less elegant, cheaper and routine services no matter how inferior, even with the option of subsidized, below cost advanced services. The migration to these robust and dynamic, often readily available features like, for example, the ability to program video tape recorders in addition to playing back prerecorded tapes, typically occurs when consumers have both access and ease of use.

For new broadband digital services, governments must undertake new and different efforts to stimulate reaching a critical mass in demand. This catalytic posture does not require more money. Instead it obligates federal, state and local governments to become sponsors, early adopters and facilitators for services that enhance one's quality of life. Because many people think locally and many government services operate at that level, the primary government catalyst function should occur primarily at the local level. This focus dovetails with the fact that the key access point in PANS involves upgrading the first and last mile in a network connection.

The White Paper concludes by suggesting that governments should focus on bridging the functional and ease of access gap between what users have at offices, school campuses and government installations and what they use at home, whether by choice, or because only a less

robust option is available. The migration of local area network functionality between individual islands to ubiquity can help stimulate demand and the incentive for people to acquire the computer skills needed for effective access. Local area networks can develop on a timely and cost effective basis particularly if their ease of access is coupled with an expanded inventory of desirable content and services. When governments offer their services via high speed local networks, along with services from community institutions like public broadcasters, schools, libraries, hospitals, museums, etc. consumers will have more reasons to want high speed broadband services. The White Paper endorses a strategy where enhanced and expanded services provided by government and other public institutions helps trigger consumer demand for advanced services and widespread deployment of local area networking functionality. Only through such ubiquitous access will demand aggregate to adequate levels to support the much anticipated information revolution.

II. Promoting Access to Basic and Advanced Services

Ubiquitous and low cost access to telecommunication services constitute fundamental public policy objective in the same vein as providing access to other basic infrastructures such as electricity and water.³ “Telecommunications is not simply a connection between people, but a link in the chain of the development process itself.”⁴ A correlation exists between access to telecommunications facilities and services and economic development.⁵ This means that efficient, effective and widely available telecommunications can stimulate social and economic development by providing the vehicle for more and better commerce, political discourse, education, and job training.

Perhaps too often policy makers and stakeholders consider access in the context of technology diffusion and push, i.e., what kinds of telecommunications technologies are available

and who uses them? The content considered desirable to citizens versus what they have available for access matters equally. Wendy Lazarus, founder of the Children's Partnership and the co-author of a study on Internet access notes: "There's been so much focus on the boxes and wires to connect to the Internet that we almost forgot to ask what people are getting once they connect." ⁶ The study authored by Ms. Lazarus and Francisco Mora emphasize the importance of content and in particular four kinds: (1) employment, education, business development and other information; (2) information that can be clearly understood by limited-literacy users; (3) information in multiple languages; and (4) opportunities to create content and interact with it so that it is culturally appropriate. ⁷

As soon as citizens and their elected representatives realized the benefits of telephone service, most supported the view that government should take steps to promote ubiquitous access. Professor Eli Noam of Columbia University has suggested the following as a working definition of this universal service mission: "a public policy to spread telecommunications to as many members of society as possible, and to make available, directly or indirectly, the funds necessary to support the policy." ⁸

In view of changing technologies and consumer expectations, the concepts of universal access and universal service have become fluid. As a baseline we should consider telecommunications access and service in terms of four components:

- 1) **Infrastructure**-the scope and nature of the network that serve users;
- 2) **Services**-what constitutes basic "life-line" service and to what other features should users have access at an additional price?;
- 3) **Cost**-should users pay the full cost of service, or should some subset of the user base receive subsidies for non-recurring charges, such as installation, as well as for recurring charges, such as monthly service?; and

4) **Maintenance and Upgrades**-what incentives must regulators create to ensure that universal service providers maintain and upgrade their networks?

Access also includes the issue of physical proximity between individuals and the telecommunications infrastructure. One cannot conclude that an entire nation has access to a telecommunications infrastructure simply because a satellite footprint illuminates the entire country, or that some people have access to state of the art, cutting edge technologies. On the other hand, significant progress in promoting access can occur when the first of only a few telephone lines become available in a locality. Accordingly, the first step in promoting access may involve the provisioning of lines to public facilities, such as libraries, post offices, government buildings, schools and clinics. But the full benefits of telecommunications access can accrue if everyone has the option of linking in regardless of social and financial circumstances, or location. Economists use the term positive network externalities to describe the condition where the total benefits derived from a good or service increase as a function of the number of people with access. Increasing the aggregate number of users and the percentage of market penetration by community networks adds value for users. As well it enhances the value accrued by both commercial and noncommercial service providers, however measured, e.g, the commercial venture's profitability and the popularity of the noncommercial venture's World Wide Web site.

The telecommunication access mission will change and evolve as technological innovations make it possible to offer faster, better, cheaper, smarter and more convenient applications. Technologies like Asymmetric Digital Subscriber Links, cable modems, wideband satellite service and terrestrial broadband options provide high speed access to new information age services such as direct to the desktop computer distance learning opportunities. Collectively these technologies offer the promise of enhancing productivity and quality of life, particularly if

data networking continues to evolve as a major medium for communications and commerce. However, these technologies suffer from limitations in terms of cost, availability, functionality and perceived benefit relative to the effort needed to deploy and effectively use the technology.

Technological innovations and the diversification of service options complicates the longstanding public policy objective of achieving affordable and ubiquitous access to telecommunications services. Currently the universal service mission for POTS costs approximately \$5 billion annually ⁹ with annual funding caps of \$2.25 billion for schools and libraries and \$400 million for health care providers. The cost of these programs have become irritating to some, because the funding method involves direct subsidization from long distance carriers and their customers who now see new charges on their monthly bills. At the same time as the POTS mission remains ongoing, Congress has defined the universal service campaign to include specific “e-rate” beneficiaries, like schools and hospitals, and a mandate for access and cost parity between urban and rural consumers for advanced telecommunications services.

III. The Role for Advanced Data Communications and Telecommunications Services

The Information Revolution means different things to different people. On a macro, technological level, it involves wider reliance on advanced telecommunications and information processing networks to achieve global connectivity. Consumers have “seamless” access to most of the individual networks that comprise what we call the Internet often with a contract covering only the first or last of many network connections. The packet-switched nature of the Internet, coupled with switching and routing protocols, provides robust and diverse network access.

A. Congress Has Expressed Greater Interest in Promoting the Universal Service Mission.

In 1996 Congress enacted the first complete overhaul of the key law governing telecommunications law and policy. Section 254 of the Telecommunications Act of 1996

(hereafter referred to as the '96 Act) amends the Communications Act of 1934 to establish an explicit mandate for the FCC to promote universal access to telecommunication services.¹⁰ The legislation requires explicit universal service funding¹¹ and mandates equitable and non-discriminatory sharing of the financial burden among all telecommunications carriers providing interstate telecommunications services.¹² The '96 Act also identified specific beneficiaries of the universal service mission: schools, health care provider facilities, and libraries. Additionally, the '96 Act directs the FCC and state commissions to promote in all regions of the nation services “that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.”¹³

The FCC, in consultation with State Public Utility Commissions, established six general universal service principles:

- Quality services should be available at just, reasonable, and affordable rates;
- Access to advanced services should be available in all regions of the nation;
- Access to basic and advanced services should be available to customers in rural and high cost areas and to low-income consumers at rates comparable to those in urban areas;
- Equitable and nondiscriminatory contributions should be made by all telecommunications providers to the preservation and advancement of universal service;
- Specific and predictable support mechanisms should exist at both the federal and state level; and
- Schools, health care facilities, and libraries should have access to advanced telecommunications services.

The FCC also determined that the following services warranted subsidization to achieve ubiquity:

- voice grade access to the public switched network, with the ability to place and receive calls;

- Dual Tone Multifrequency (“touch tone”) signaling or its functional equivalent;
- single-party service;
- access to emergency services, including 911 and Enhanced 911 (which identifies a caller’s location);
- access to operator services;
- access to interexchange services;
- access to directory assistance; and
- Lifeline and Link Up services for qualifying low-income consumers.

On the matter of telephone service affordability, the FCC accepted the recommendation of a Board, comprised of FCC and state public utility Commissioners, that the states should monitor rates and non-rate factors, such as subscribership levels, to ensure that local telephone service remains affordable. The FCC expanded the Lifeline program, which discounts local telephone service to qualifying users, and implemented the “e-rate” program that provides schools and libraries with discounted access to all commercially available telecommunications services, Internet access, and internal connections. Eligible schools qualify for discounts ranging from 20% to 90%, with the higher discounts available to the most disadvantaged schools and libraries and to those in high cost areas.

The FCC capped total expenditures for universal service support for schools and libraries at \$2.25 billion per year, with a roll-over into following years of funding authority, if necessary, for funds not disbursed in any given year. Additionally all public and not-for-profit health care providers located in rural areas will receive universal service support, not to exceed an annual cap of \$400 million. A health care provider may obtain telecommunications service at a transmission capacity up to and including 1.544 megabits per second, the throughput equivalent

of a T-1 line, at rates comparable to those paid for similar services in the nearest urban area with more than 50,000 residents, within the state in which the rural health care provider is located.

Rural health care providers also will receive support for both distance-based charges and a toll-free connection to an ISP. Each health care provider that lacks toll-free access to an Internet Service Provider (“ISP”) may also receive the lesser of 30 hours of Internet access at local calling rates per month, or \$180 per month in toll charge credits for toll charges imposed for connecting to the Internet.

IV. While the Technology Exists to Promote More Widespread Access, Subscribership Lags Expectations.

The technological innovations that offer the promise of widespread broadband digital access have yet to realize their potential. While ability to pay certainly constitutes a factor, research on communications expenditures shows that traditional candidates for universal service funding may opt out for nonfinancial reasons, and conversely may opt in for more expensive services, e.g., enhanced basic and other premium tier cable television services in lieu of other more expensive entertainment options. Currently we see a vicious cycle where investment and enthusiasm for new advanced telecommunications technologies wanes as stock valuations decline and tests and demonstrations fail to reach critical mass.

A. Universal Service Cannot Fully Develop Without Government Leadership, Particularly for Advanced Services.

Increasingly the FCC has expressed confidence that marketplace resource allocation and competition will adequately provide the capital, technologies and services necessary to achieve universal access to information superhighways. Part of this misguided confidence appears to stem from the widespread availability of multiple ISPs throughout the nation, the trend toward distance insensitivity in telecommunications and information service charges and the

longstanding tendency for ventures to offer nationally averaged, “postalized” flat rated service.

However, a fundamental question remains unanswered: have the billions of dollars already invested in universal service achieved the desired outcomes, and if not what changes in strategies might improve the programs' effectiveness? ¹⁴ More specifically:

- How can people in rural and high cost areas achieve parity of access to cutting edge new technologies as Congress intended when it enacted the Telecommunications Act of 1996?
- Are first and last mile access services distance insensitive and will they remain so with new technologies like ADSL that have service limits based on proximity to switching facilities?
- Under what circumstances will carriers deaverage rates thereby eliminating one-price, postalized services?
- And perhaps most importantly, what can community based organizations do to maximize the benefits of universal service subsidies for their localities?

These questions shape the universal service issue in the context of meaningful and desirable access to the life enhancing services offered via telecommunications and information processing networks. The answers do not push technology for technology's sake, but instead respond to the pull of citizens' wants and needs. Few consumers have intense technology preferences as to how they secure access to telecommunications-delivered services. What matters is the services and features to which these technologies provide access. In fact they matter so much that unless and until consumers perceive adequate reasons for making the financial and time commitment to new broadband technologies, most will make do with less elegant, but older, cheaper and customary options.

From this perspective promoting access to advanced services depends less on technology enhancements and more on developing the interest in, and demand for, access to the services and features these technologies can provide. A public policy that allocates billions for technology

deployment may lack effectiveness unless and until it includes programs and strategies for creating the content and services that people want.¹⁵

V. The Advanced Services Paradox: People Want High Speed First and Last Mile Access When Their Individual Circumstances Demand It.

From blue sky prognosticators to the vast majority of survey respondents, we have taken as a given the need to bridge the gap between the telecommunications services available in offices, colleges and government facilities and what residential users have available. But people will make the commitment to advanced services if and when they see adequate payoff for their investment in computers and network cards, etc. coupled with a monthly service fees of \$40 or more. Until PANS become “killer applications” most consumers will make do with the less elegant, but cheaper and user friendly dial up options.

Internet “early adopters” make the investment in personal computers and additional or upgraded telecommunications access for a number of reasons. The Internet provides a limitless array of services and features. Likewise individuals scattered across the globe can foster a community of shared interests from A to Z and see the Internet as providing faster, better, smarter, cheaper and more convenient applications. However, to achieve universal access to advanced services, the mainstream must similarly desire enhancements even if these are not as ambitious or broadsweeping as what early adopters seek.

Widespread access to advanced services and the demand for such access may require stimulation and promotion from both the private and public sector. For many in the mainstream the motivation to seek access may derive from local requirements including streamlined, more convenient and helpful access to government services. Research supports the view that many citizens may not have access to information resources like the Internet, because they have not

seen the need, lack the resources to acquire a personal computer, or lack basic computer literacy skills.¹⁶

VI. Access to Cyberspace Includes a Key Local Component.

The phrase “Think Globally; Act Locally” typifies the common view that while we have an interest in world events as global citizens, our day-to-day circumstances favor a local orientation. Even as the Internet provides seamless access to sites located anywhere in cyberspace, many of the sites and reasons for access are locally based. Accordingly, interest in advanced telecommunications and information processing applications may result largely from individuals' experiences with local networking and the services available locally. A large body of literature and empirical experience¹⁷ support the view that an effective strategy to promote access to basic and advanced telecommunications requires collaboration with community institutions and the delivery of content people want.¹⁸

A recent study reported that the information identified as useful by low-income and other traditionally underserved Americans either does not exist, or proved extremely difficult to find on the Internet:

Focus groups with members of the target population and interviews with a variety of people who work with underserved users revealed that underserved Americans have unique needs and interests when it comes to content on the Internet. A particularly striking characteristic among underserved Americans is that they seek “life information,” or what has been referred to in the library and information science field as “community information.” . . . Over and over again, the [adult] users we talked with told us that practical information about their local community is what they want most.¹⁹

Even as the lion's share of universal service funds flow to infrastructure building to improve access, some of those funds might more effectively apply toward building community-based content, and the skills needed to exploit content access opportunities. In a comprehensive audit of the online content needs of low-income and underserved Americans, the Children's

Partnership found that what contributed the most to variations in telecommunications access included the perception that existing services do not offer the most urgently needed local information, literacy barriers, English comprehension limitations, and cultural diversity barriers. While an issue, even cost of access may be less of an impediment than the perception that access will not meet individual requirements and accordingly is not worth the effort. The study noted that 56 percent of low-income families subscribe to cable television at monthly rates of about \$28, because “so long as the product is seen as valuable, price alone does not deny a market”²⁰

The United States Government has emphasizes the need for “policymakers . . . [to] explore ways to continue to boost telephone penetration, particularly among the underserved, and to expand computer and Internet connectivity.”²¹ However it also acknowledges that “[f]or other individuals, there are language and cultural barriers that need to be addressed. Products will need to be adapted to meet special needs, such as those of the disabled community. Finally, we need to redouble our outreach efforts, especially directed at the information disadvantaged.”²² This perspective links the campaign to deploy access technologies and to make it affordable with efforts to build technology literacy, local content and local networks. Access

isn't simply an issue of whether everyone can afford . . . the Internet. Other factors must be considered as well [including] . . . increasing technology literacy [coupled with] basic [language] literacy Another component . . . [involves] the lack of high quality content for all Internet users. Much work still needs to be done in treating citizens as producers of information pertinent to their community's interests. . . . Similarly, when the market fails to produce content for a particular population, members of that population should be able to establish online spaces with their community's interests in mind. Scores of community networks like the Austin (TX) Free Net and Davis (CA) Community Network have pioneered non-commercial, local online content. Communities must embrace this opportunity and become producers of content that is pertinent to their cultures and needs.²³

VII. Getting Off the Starting Line: Government as Incubator, Anchor Tenant, and Content Provider.

The Internet did not become the tremendous engine for communications and commerce without government support. This type involvement has less to do with direct funding and more to do with government operator as sponsor, early adopter and facilitator. Some of the key government incubator activities involves sponsorship of community technology centers, helping fund broadband access in public places and institutions like schools, libraries, and hospitals, creating neighborhood learning centers in housing projects, encouraging businesses to promote Internet and computer literacy and training teachers to make effective use of telecommunications and information processing technologies in the classroom.

Individuals may see the benefit of broadband access only when their local, daily community lives grow better and more robust as a result of such access. The catalyst for this local component can come from a federal, state and local partnership with local civic, educational and cultural institutions coupled with rapid deployment of ubiquitous technology.

The Internet has developed into a major communications and commercial medium, because other long touted concepts also became real and provided the foundation on which to build a thriving international network of networks.²⁴ The Internet could not become a vibrant and substantial medium without:

- the proliferation of high throughout capacity to house, deliver, and route desirable content to a large and geographically diverse population;
- technological innovations that promoted the convergence of previously discrete media and services;
- the wisdom in government decisions to incubate new technologies, but also to refrain from regulating and managing Internet applications; and

- the creativity and drive of entrepreneurs, activists and citizens of cyberspace that trigger innovations and the “buzz” needed to convince consumers to buy the technology and to ascend information technology learning curves.

Federal, state and local governments in collaboration with community organizations can help achieve ubiquitous and desired access to advanced telecommunications and information processing services. Ubiquity and desirability involve more than financial incubation and underwriting infrastructure development. It involves bridge building that narrows gaps in technology, literacy, and content. Technology gaps narrow when most people have reasons to buy or seek access to personal computers and information appliances. The reasons to buy or seek access at schools, libraries, and information centers, etc. will vary, but largely depend on the availability of desirable content and user friendly ways to access that content.

The United States Department of Education offers a Tool Kit for Bridging the Digital Divide in Your Community.²⁵ The Tool Kit provides straightforward suggestions on information gathering, building a base of support for projects, setting goals, establishing criteria for evaluating which projects to undertake, identifying resources available in the community and beyond, planning and ways to seek funding.

A. Best Practices in Community Development Through On-Line Networking

Arguably just about any function, service or requirement provided or imposed by a government agency should have a networked option.²⁶ The prospects for such “electronic government” are limitless and the potential for greater efficiency, citizen satisfaction and cost savings are real. Even now some government agencies have embraced the Internet as a tool for eliminating the inconvenience of lines, limited opening hours and downtown parking to name a few factors that irk citizens. The Intergovernmental Technology Leadership Consortium

maintains a listing of federal, state and local initiatives that currently apply the utility of electronic networking.²⁷ Recently posted examples of effective e-government include:

- an automated Web-based system in Bakersfield, California that will track and direct problems with potholes, gripes about graffiti and complaints about missed trash pickups;
- Colorado recently became the first state to institute a state-wide electronic filing system for the courts;
- a Texas County installed a single, easy to use electronic filing system for accepting tax payments due in any of 44 taxing jurisdictions including the city of Houston;
- Minnesota and Tennessee allow citizens to renew their drivers licenses online;
- the Governor of California has created a Task Force to consider whether and how to implement Internet voting option;
- at the federal level in early 2001a World Wide Web site (www.Firstgov.gov) will provide one-stop access to the forms needed for the government's 500 most frequently used services;

Other recent electronic community initiatives include launched a new information Web site for the city's youths (www.bostonyouthzone.com) providing one-stop access to resources and information about education, sports, culture, health, and after-school programs. San Jose, California became one of the first cities in the United States to issue permits online using digital signatures. Contractors and homeowners can now apply for, and be issued building permits via the Internet at www.sjpermits.org. The Intelligent Transportation Society of America awarded its "Best in ITS" award to the city of Seattle, Washington for its innovative use of e-mail technology, via the Internet and pagers, to alert motorists and bus /riders to traffic problems. The Texas Online Internet Portal²⁸ (www.TexasOnline.com) provides a single point of access to most state government services and information in a user-friendly manner and provides a model for how to market a state as technology savvy and ready to do business in the

information economy.²⁹ Another quite helpful collection of “best practices” information about state initiatives in a variety of networking areas is maintained by the States Inventory Project.³⁰

To paraphrase a famous quote: government is best when its governmental function imposes the least amount of cost on citizens in terms of time, money and effort. Surveys assessing the services e-government that people want fit in these categories:

- Renewing a driver’s license;
- Voter registration;
- State park information and reservations;
- Voting on the Internet;
- Access to one-stop shopping (one portal for all government services);
- Ordering birth, death, and marriage certificates;
- Filing state taxes;
- Hunting and fishing licenses; and
- Accessing medical information from the National Institute of Health.³¹

B. Economic Development Through Advanced Telecommunications and Information Technologies

Janet Caldwor of the IBM Institute for Electronic Government suggests the need to for cities to reinvent themselves to exploit the benefits of the digital, information age.³² Put more bluntly Ms. Caldwor suggests that cities that do not will be left behind much as agricultural centers faltered when the industrial age emphasized other resources and features:

What are the new economy players looking for? By far it’s not just the Chamber of Commerce. They want a technology-savvy labor pool; they want a robust technology infrastructure; they want a public policy and legal framework that supports e-commerce; and they want a government that can interact with them at the speed of business in **their** world. Want to kill economic growth with Net

entrepreneurs? Take 12 weeks to approve a building permit. Too many other cities will beat you at that game.³³

VIII. What Do Governments and Private Partners Have to Deliver?

In addition to delivering the services citizens want (and will incur the costs to access), governments and their private partners need to exercise leadership and consider on-line networking as a vehicle for faster, better, smarter and more convenient service. The networks that governments develop, sponsor and use must offer user friendly access and navigation. Likewise they must offer users a safe, secure, and private environment within which to do business. Simply put government use of advanced telecommunications and information networks should evidence a commitment to manage and operate government as an enterprise. This enterprise does not maximize profits, as a business might. Nevertheless it should operate with the same imperatives regarding customer service, responsiveness and efficiency.

Visions of a wired village requires both access to cutting edge telecommunications and information technologies and a desire by citizens and their government representatives to achieve an on-line community:

The key challenges the Internet community will face in the future are not simply technological, but also sociological: the challenges of social interaction and social organization. This is not to diminish the difficulties of creating new technologies, but rather to emphasize that even these tasks will pale besides the problems of facilitating and encouraging successful online interaction and online communities.³⁴

Already many cities and towns have embraced the challenge of finding ways to enhance community, improve government services and stimulate economic development through on-line networking. This section will examine some of the “best practices” achieved in community building and improving government services.

A. Blueprint for Success

Limitations on access to advanced telecommunications and information processing services will narrow if and when funding, technology deployment and the public will support such an ambitious undertaking. However, governments cannot simply throw money at the problem and expect effective solutions. Effective resolution in large part depends on the ability and willingness of local governments, in consultation with their constituents, to examine how best to make the needed technology both user friendly and accessible, coupled with the provision of the essential services governments offer the community. Even with adequate funding and widespread deployment of technological upgrades, the matter of public attitude can make or break progress.

Public support for advanced telecommunications services likely will result when three outcomes occur:

- 1) technological access is affordable and user friendly;
- 2) the user population, particularly targeted groups, become interested in acquiring the skills needed to make access enjoyable, or at least not frustrating and problem laden; and
- 3) users can find content that enhances their quality of life.

Achieving these three prerequisites involve a recalibration in how to promote access to basic and advanced telecommunication services. In conjunction with financial programs aiming to lower financial barriers to access, governments should allocate funds for improving the training of citizens for accessing information sources. Likewise governments should diversify their information access incubation strategies by making a commitment to provide networked access to their services. Citizens should have networked access to the wealth of information provided by government in such diverse fields as employment, libraries, public health, safety,

licensing, taxation, job training, recreation, etc. Put another way governments should provide a networked alternative to just about any function it performs for its citizens in a bricks and mortar environment.

Promoting access to basic and advanced telecommunication service requires new strategies to make technologies local, affordable, accessible and worthy of mastering:

But, as the cost of using the Internet continues to fall (services offering free access are becoming the norm, and a basic PC can now be had for little more than a video recorder or a large television), the true reason for the digital divide between rich and poor will become apparent. The poor are not shunning the Internet because they cannot afford it: the problem is that they lack the skills to exploit it effectively. So it is difficult to see how connecting the poor to the Internet will improve their finances. It would make more sense to aim for universal literacy than universal Internet access.³⁵

People from all walks of life have televisions and video tape recorders, because these devices blend desirable content with ease of use. Not all of the VCR owners, regardless of socio-economic or educational status, have learned to program these devices, and fewer still regularly use this feature even though it might expand options and enhance their television viewing experience. The decision not to tap this technological option may provide insights on what aspects of variations in access to advanced telecommunications and information processing services have less to do with finance and more with human nature.

Few people ascend a technology learning curve, unless and until they perceive an adequate payoff. The payoff involves cheaper and easier access to such basic government services as providing information about employment and housing vacancies, ways to improve job skills, and community enhancing networking opportunities.

IX. Conclusion

Community-based high performance local area networks enable uses and applications that will serve the wants and needs of a much broader range of consumers than what the Internet

currently offers. These “must-have” applications combine news, entertainment, interactive games and electronic commerce with more fundamental and essential services primarily offered by local governments, e.g., job placement, enhancing employment skills, social services, etc. When people can access the latter in a faster, better, smarter and more convenient manner gaps in access can narrow as demand for advanced telecommunication services grows with local area networks becoming a recognized engine for personal advancement and regional economic development.

Policy makers at all levels of government have an important role to play as the catalyst for deployment of local networks.³⁶ Local and regional government officials in particular can bring together various interest groups and constituencies and make essential public services more accessible via an electronic medium.

NOTES

¹ See United States Department of Commerce, National Telecommunications and Information Administration, *Americans in the Information Age Falling Through the Net*, available at <http://www.ntia.doc.gov/ntiahome/digitaldivide/>; Benton Foundation, *Losing Ground Bit By Bit, Low-Income Communities in the Information Age* (1998), available at: <http://www.benton.org/Library/Low-Income/>. See also Digital Divide Network, available at <http://www.digitaldividenetwork.org/>; Bill and Melinda Gates Foundation, Digital Divide Research, available at <http://www.gatesfoundations.org/learning/digitaldivide.htm>.

² Universal service programs include funding for schools and libraries, commonly known as the e-rate program; high cost support, a rural health care program and two programs (discounted initial hook up fees and reduced monthly rates) supporting access by people with low incomes. See Federal Communications Commission, Accounting Policy Division, Universal Service, available at http://www.fcc.gov/ccb/universal_service/. In 1998 the Commission adopted annual funding caps of \$2.25 billion for schools and libraries and \$400 million for health care providers.

³ See International Telecommunication Union, *World Telecommunication Development Report 1998*, Chapter 4, Universal Access (1998).

⁴ Heather E. Hudson, Access to the Digital Economy: Issues in Rural and Developing Nations, paper presented at Understanding the Digital Economy—Data, Tools and Research,

conference organized by the United States Department of Commerce, Washington, D.C. May 25-26, 1999, available at <http://mitpress.mit.edu/ude.html>; *see also* <http://www.ecommerce.gov>.

⁵ *See, e.g.,* Into Vogelsang, Micro-Economic Effects of Privatizing Telecommunications Enterprises, 13 Boston University International Law Journal (Fall, 1995); Robert J. Saunders, et al., *Telecommunications and Economic Development* 4 (2d ed. 1994); Ben A. Petrazzini, *The Political Economy of Telecommunications Reform in Developing Countries: Privatization and Liberalization in Comparative Perspective* 28 (1995); Walter T. Molano, *The Logic of Privatization: The Case of Telecommunications in the Southern Cone of Latin America* (1997). *see also* Christopher J. Sozzi, Project Finance and Facilitating Telecommunications Infrastructure Development in Newly-Industrializing Countries, 12 Santa Clara Computer & High Tech.L.J. 435, 436-39 (1996); Bella Mody, et al., *Telecommunications Politics: Ownership and Control of the Information Highway in Developing Countries* (1995).

⁶ The Benton Foundation, Digital Beat — 8/8/2000, Content and the Digital Divide: What Do People Want? Available at <http://www.digitaldividenetwork.org/contentbeat.adp>.

⁷ Wendy Lazarus and Franciso Mora, *Online Content for Low-Income and Underserved Americans: The Digital Divide's New Frontier A Strategic Audit of Activities and Opportunities*, Executive Summary (March 2000) available at <http://www.childrenspartnership.org/>.

⁸ Eli M. Noam, Will Universal Service and Common Carriage Survive the Telecommunications Act of 1996?, 97 Columbia Law Review, 955, 957 (1997).

⁹ Universal service programs include funding for schools and libraries, commonly known as the e-rate program; high cost support, a rural health care program and two programs (discounted initial hook up fees and reduced monthly rates) supporting access by people with low incomes. *See* Federal Communications Commission, Accounting Policy Division, Universal Service, available at http://www.fcc.gov/ccb/universal_service/.

¹⁰ Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56, 47 U.S.C. §254.

¹¹ 47 U.S.C. §254(e); *see also* Joint Explanatory Statement at 131 (“In keeping with the conferees’ intent that universal service support should be clearly identified, [section 254(e)] states that such support should be made explicit . . .”).

¹² 47 U.S.C. §254(d).

¹³ *See* 47 U.S.C. §254(b)(3).

¹⁴ Arturo Gandara, “Equity in an Era of Markets: The Case of Universal Service,” 33 Wake Forest L. Rev. 107 (1998).

¹⁵ “Information technology is a tool for addressing needs, rather than an end in and of itself. Programs in the communities under study use information technologies to address various local community needs such as improving student performance, job training, and providing convenient

delivery of social services including health and citizenship education. Participants felt that technology should be used for more than just teaching word processing. Schools, libraries, and community centers should integrate technology and education so that technology can be used to enhance critical thinking skills of all learners.” Paula Y. Bagasao, Elsa Macias, Sara Jones, and Harry P. Pachon, *Challenges to bridging the digital divide: Building better on ramps to the information highway*, Tomás Rivera Policy Institute, Policy Brief (Aug., 1999) available at <http://www.trpi.org/dss/policybrief.html>.

¹⁶ African Americans and Hispanics were found to be less likely to own computers, even after adjusting for income and education. Individuals lacking the incentive to buy or seek access to personal computers will not have even the basic information processing skills needed for Internet access. Even if technological access was ubiquitous these people might opt out due to disinterest, or the lack of understanding what they are missing.

¹⁷ See T.E. Anderson and A. Melchior, Assessing telecommunications technology as a tool for urban community building. 3 *Journal of Urban Technology*, No. 1, 29-44 (1995); M. Cooper and G. Kimmelman, *The digital divide confronts the Telecommunications Act of 1996: Economic reality versus public policy* (Consumers Union: Feb., 1999) available at <http://www.consunion.org/other/telecom4-0299.htm>
Donna L. Hoffman, Thomas P. Novak and Ann E. Schlosser, The Evolution of the Digital Divide: How Gaps in Internet Access May Impact Electronic Commerce, 5 *Journal of Computer-Mediated Communications* No. 3, (May, 1999) available at <http://www.ascusc.org/jcmc/vol5/issue3/hoffman.html>.

¹⁸ “Oregon’s state government enterprise – its educational entities, libraries, state and local governments, and other information partners – uses a mix of electronic and information technologies to provide citizens with many basic services in a friendly, efficient, and accessible manner. The public has access to these tools so that cost, time or location does not limit their interactions with government agencies and officials. Information technologies are used within Oregon government to improve the quality of service, increase productivity, achieve efficiencies in the delivery of services, and help achieve the State’s growth management goals. The state government enterprise accomplishes these outcomes through the prudent investment in and shared use of electronic technologies. To achieve this vision and to support the continued improvement in services provided to the citizens of the State of Oregon, public servants must seek opportunities to promote collaborations and partnerships to overcome barriers of cost, jurisdiction, time or geography. The practices to be followed, which will help achieve this vision, are to:

- Increase public access to government information by making frequently requested government information available online 24 hours a day, 7 days a week, 365 days a year;
- Acquire technology that is adaptable and interoperable;
- Foster partnerships;
- Select open architecture solutions that are designed for long term growth and utility;
- Make information accessible through shared network infrastructure;

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- Design system flexibility that allows users to develop unique solutions that suit individual needs;
 - Reduce transaction times for those using government services;
 - Leverage State information technology investments to benefit multiple agencies, governments and its citizens;
 - Get the maximum benefit of current information and technology;
 - Improve opportunities for enterprise growth and development throughout the State; and
 - Increase the quality and quantity of distance learning offerings.”

State of Oregon Enterprise Information Technology Strategy (Oct. 1998) available at <http://irmd.das.state.or.us/ITPFinal.html#The Strategy>.

“The reasons that advanced communications services are not as accessible and developed as they need to be are many and include the following reasons:

- Such services can be very expensive for businesses and consumers at the present limited level of use
- Rates of return for advanced services are not certain enough for some companies to proceed
- Major commercial interest is in “cherry picking” markets, which is competing only in the largest and most customer dense communities
- Large, out-of-state companies who provide communications in Iowa are not always focused on local needs
- There is a need for more cooperation and strategic alliances among the parties who own or lease networks to extend this higher level of service throughout the state
- The ICN is prohibited from leasing space to the private sector, even in areas of Iowa that are not served by the private sector
- Businesses and consumers are not fully educated on the usefulness of advanced services

Entrepreneurs need to be encouraged who would extend broadband Internet services in places with underdeveloped communications.” *Iowa's Digital Divide: Securing Advanced Telecommunications Services, Including High Speed, Affordable Internet Access, For All of Iowa*, Briefing Paper for Governor Vilsack and Lieutenant Governor Pederson, (February 2000) available at http://www.state.ia.us/government/its/Digital_Divide/Digital_Divide.htm
See also Freenets and Community Networks, available at <http://www.lights.com/freenet/> (pointers sites throughout the world).

¹⁹ The Children's Partnership, *Online Content for Low-Income and Underserved Americans: The Digital Divide's New Frontier--A Strategic Audit of Activities and Opportunities*, (2000) available at <http://www.childrenspartnership.org/>.

²⁰ *Id.*, The Potential Use Rate Among the Underserved, Lessons from Cable Television.

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- ²¹ United States Department of Commerce, National Telecommunications and Information Administration, *Falling Through the Net: Defining the Digital Divide*, PART III, Challenges Ahead (1999); available at <http://www.ntia.doc.gov/ntiahome/ftn99/part3.html>.
- ²² *Id.*
- ²³ Andy Carvin, “Mending the Breach: Overcoming the Digital Divide,” available at <http://gief.org/edutopia/newsletters/spring2000/carvin.html>.
- ²⁴ See Eli M. Noam, “Beyond Liberalization-From the Network of Networks to the System of Systems,” 18 Telecommunications Policy No. 4, pp. 286-294 (1994).
- ²⁵ See United States Department of Education, Office of Educational Technology, Tool Kit for Bridging the Digital Divide in Your Community, available at http://www.ed.gov/Technology/tool_kit.html.
- ²⁶ The Paperwork Reduction Act of 1998, 44 USC § 3501, *et seq.* (2000) requires almost all federal government agencies to put all their services and transactions online by 2003.
- ²⁷ See <http://www.excelgov.org/>
- ²⁸ “Government portals are frequently defined as the state’s “single face.” This description is used for citizens, employees and the state’s trading partners. In order to create this ‘single face,’ many states have begun migrating or completely reengineering their state Web sites into service delivery mechanisms.” National Electronic Commerce Coordinating Council in conjunction with the Center for Digital Government, *Electronic Government: A Blueprint for States*, available at http://www.ec3.org/InfoCenter/02_WorkGroups/version1.htm.
- ²⁹ “The use of technology is changing the way government does business in Texas. This secure, one-stop Web site – the first phase of Texas’ e-government initiative – provides access to Texas government services 24 hours a day, seven days a week. Visitors can renew certain licenses and certifications, apply for permits, and much more. TexasOnline will enhance Texas government by making it more accessible, efficient, and responsive to all Texans.” Governor George W. Bush, quoted in *TexasOnline: A Feasibility Report on Electronic Government* (Nov. 1, 2000) available at <http://www.dir.state.tx.us/egov/report/finalrpt.htm>
- ³⁰ See <http://www.states.org/contents/index.html>.
- ³¹ Meghan E. Cook, Center for Technology in Government, University at Albany, State University of New York, *What Citizens Want From E-Government*, (2000) available at http://www.ctg.albany.edu/resources/htmlrpt/e-government/what_citizens_want.html.
- ³² See Janet Caldwell, *Cinderella Cities*, available at <http://www.ieg.ibm.com/pdf/cinderella.pdf>
- ³³ *Id.*

³⁴ Peter Kollock, Design Principles for Online Communities, PC Update 15(5): 58-60. June 1998, available at <http://www.sscnet.ucla.edu/soc/faculty/kollock/papers/design.htm>.

³⁵ The Economist, What the internet cannot do, (Aug. 19, 2000) available at: http://economist.com/editorial/freeforall/20000819/index_id0592.html.

³⁶ The World Wide Web offers a variety of helpful reference material on e-government and economic development through electronic networking. *See, e.g.*,
<http://www.benton.org/> Benton Foundation
<http://www.statesnews.org/> web site of the council of state governments
<http://www.excelgov.org/> Council for Excellence in Government
<http://www.e-envoy.gov.uk/> United Kingdom government strategy site
<http://www.nlc.org/> National League of Cities
<http://www.cpsr.org/cpsr/states/california/cegi.html> California Electronic Government Information
<http://e-conomy.berkeley.edu/knowledgedomain.html> University of California at Berkeley E-conomy Project
<http://www.dir.state.tx.us/egov/report/index.html> TexasOnline: A Feasibility Report on Electronic Government
http://www.ec3.org/InfoCenter/02_WorkGroups/version1.htm Electronic Government: A Blueprint for States; a product of the National Electronic Commerce Coordinating Council conjunction with the Center for Digital Government
http://smart.gov/egec/electronic_gov.htm Electronic Government and Electronic Commerce
<http://www.states.org/contents/index.html> inventory of state networking, e-government and e-commerce initiatives
<http://www.gita.state.az.us/index.html> Arizona @ your service
<http://www.egovernment.homestead.com/lead.html> California Life Events and Affinity Design (L.E.A.D.) Program
http://www.co.miami-dade.fl.us/cio/egov/e-government_report.htm E-Government: Serving the Public through Technology Miami-Dade County Working Group Report of Findings
<http://www.cio.state.ut.us/docs/smartUtah.pdf> SmartUTAH Survey of Internet Usage and Attitudes of Utah's Small Businesses (June, 1999)
http://www.nicusa.com/NIC_flash/index_flash2.htm National Information Consortium, Momentum Research Group of Cunningham Communication
<http://www.excelgov.org/egovpoll/index.htm> Benchmarking the E-Government Revolution: Year 2000 Report on Citizen and Business Demand, Hart-Teeter, Council for Excellence in Government
<http://www.digitaldivide.gov/> U.S. government site
<http://www.powerup.org/index.shtml> coalition of non-profit organizations
<http://www.siliconvalleydigitaldivide.net/resources.html> variety of links to other sites