THE DIGITAL DIVIDE: BRIDGING THE TECHNOLOGY GAP

HEARING

BEFORE THE

SUBCOMMITTEE ON EMPOWERMENT

OF THE

COMMITTEE ON SMALL BUSINESS
HOUSE OF REPRESENTATIVES

ONE HUNDRED SIXTH CONGRESS

FIRST SESSION

WASHINGTON, DC, JULY 27, 1999

Serial No. 106–25

Printed for the use of the Committee on Small Business

U.S. GOVERNMENT PRINTING OFFICE

60–580 WASHINGTON : 2001

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THE DIGITAL DIVIDE: BRIDGING THE TECHNOLOGY GAP

TUESDAY, JULY 27, 1999

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON EMPOWERMENT,
COMMITTEE ON SMALL BUSINESS,
Washington, DC.

The subcommittee met, pursuant to call, at 2:10 p.m., in room 2360, Rayburn House Office Building, Hon. Joseph R. Pitts (chairman of the subcommittee) presiding.

Chairman PITTS. Ladies and gentlemen, the time of the hearing having arrived, we will convene the Empowerment Subcommittee.

Good afternoon and welcome. Thank you for joining me and the members of the Subcommittee on Empowerment to discuss the digital divide. The term "digital divide" refers to the differences between groups to whom computer and Internet electronic technology is available and groups lacking such access.

A recently released study by the Commerce Department's National Telecommunication and Information Administration finds evidence of a widening digital divide. Data from the study shows demographic differences between those groups with access to telephones, personal computers, and the Internet, and those without such access.

On a positive note, the results of the study demonstrate that Americans, as a whole, are advancing with respect to Internet connectivity. In fact, in 1998 over 40 percent of U.S. Households had personal computers and, of those, approximately 26 percent had Internet access. While this finding is encouraging, a more problematic issue remains. Some socioeconomic groups consistently fall below the national average with respect to access to the tools of the information age. Indeed, the study reports that minority, low-income, rural and single-parent households are less likely to have access to electronic resources.

As we move from a paper-based society to an electronic one, personal computers and Internet access are becoming increasingly valuable. Interactive computer networks have the potential to enhance many aspects of our lives, including our education and career prospects. Indeed, the rapid infusion of electronic resources into our society has rendered computers and the Internet indispensable tools in some homes, offices and schools.

As opportunities for jobs in high-tech industries grow, the ensuing need for information technology education becomes more apparent. Therefore, developing ways to bring innovative technology to communities with a demonstrated need for it ensures that more

people have access to electronic resources. Increased access to technology, coupled with proper instruction, enhances the possibility that those who are currently not computer and Internet proficient will come to embrace these resources.

The Internet is an invaluable research tool for entrepreneurs seeking to start or grow a small business, allowing them a means of product and market research, as well as a method of locating financial resources. The Internet also offers the possibility of electronic commerce, allowing small businesses another medium for conducting business transactions.

Yet with all the demonstrated benefits of computer and Internet access, some groups remain less likely to avail themselves of technology resources. An increased awareness of this digital divide has stimulated the private sector to intervene with initiatives focused on expanding access of technology to include underserved groups. Community and nonprofit groups play an integral role in partnering with telecommunications firms in order to introduce information technology into the communities they serve.

I am pleased to introduce today two panels of witnesses who will acquaint the Members more intimately with the nature of the problem and propose solutions.

On the first panel, we are privileged to have Larry Irving, the Assistant Secretary of Commerce for Communications and Information, who presided over the NTIA study. Mr. Irving will explain the problem of the digital divide by detailing the results of the study.

Following Mr. Irving, Maureen Lewis, General Counsel for the Alliance for Public Technology, will share her thoughts regarding the role of technology in our society.

Finally, we welcome Harris Miller, President of the Information Technology Association of America. Mr. Miller has testified before the full Committee regarding Y2K and e-commerce, and we are pleased to have him back to speak about the digital divide.

Our second panel consists of four witnesses beginning with Keith Fulton, Director of Technology Programs and Policy for the National Urban League, who will speak about the League's efforts to bring electronic resources into economically distressed areas.

Next we will hear from Tim Robinson, Legislative Attorney at the Ameritech Corporation, who will detail his company's efforts to bridge the gap.

We will then receive testimony from Jack Krumholtz, Director of Federal Government Relations at Microsoft, who will also speak about the role of the private sector in introducing technology to underserved areas.

Finally, Thomas Coleman, President and CEO of the Technical Careers Institute located in New York City, will testify about the importance of education in creating a technology-literate workforce.

I am looking forward to hearing the testimony of all the witnesses, and I now turn to the distinguished ranking member, Ms. Millender-McDonald, for any opening comments she would like to make.

[Mr. Pitts' opening statement may be found in the appendix.]

Ms. MILLENDER-MCDONALD. Mr. Chairman, let me first thank you for convening this hearing. This is a very important hearing and one that I have been looking forward to even before the report

came out. Now about the report has come out, it is just a testament of what we have known all along, that there are some have-nots who will not cross this bridge into the 21st century because they are not connected and they are not online.

I would like to present my statement for the record. I am just going to speak candidly for a few minutes, Mr. Chairman, if it is okay with you.

You know, a couple of weeks ago it was quite telling when the President came to visit a variation of communities, rural and urban, and he came because he knew that the economy had been great for this country and great for Americans but not all Americans, and this is why he chose to visit the various urban and rural districts.

He came to my district of Watts because he recognized that a lot of my constituents have not and will not be able to communicate through this new medium that we call the Internet, this new web page that we talk about. There will be no communication from friend to friend across the waters because they are not on line. So there are a lot of people who will not be on line, will not be able to communicate throughout this world, and yet we talk about a global workplace. The digital divide is strictly one that is real in the urban communities and, yes, in the rural communities.

As the President went to Appalachia and some of those other areas, we had folks who did not have running water, did not have telephones, and so why do we then think that we are heading into this whole new medium of exchange, of communication, of information, when this highway has left so many on the sidelines?

I am very pleased that I will hear from people today who will talk about the report who will perhaps give us some solutions as to how we start dealing with this issue, but I have young people, young folks in junior high school and high school and, yes, in elementary school who will not be able to communicate with young folks in Japan and China and other parts of this world if we do not prevent this type of have-nots in this country.

We recognize that knowledge is important. Knowledge is important because it gives you the information tool that you need and then the skills so appropriate for young folks to have, but they need the skills and they need the computers. Those two things are principal elements to young folks in the Watts area, in Appalachia, in Mississippi and other places where the President visited that will not have and will not be able to move along this superhighway if we do not look at, very seriously, this digital divide, this divide that will continue to make the rich richer, to erase the middle class and make the poor poorer.

I am very excited about this hearing and look forward to the presentations. Thank you, Mr. Chairman.

Chairman PITTS. Thank you.

[Ms. Millender-McDonald's statement may be found in the appendix.]

Chairman PITTS. We are going to ask the members and witnesses to abide by the 5-minute rule today. We have two panels, and if the members who will be asking questions cannot cover them in 5 minutes, we will begin a second round.

So, at this time, we would like to ask the Honorable Larry Irving to present testimony.

STATEMENT OF THE HONORABLE LARRY IRVING, ASSISTANT SECRETARY FOR COMMUNICATIONS AND INFORMATION, U.S. DEPARTMENT OF COMMERCE

Mr. IRVING. Thank you, Mr. Chairman.

I would like to thank you and the members of the Subcommittee for this opportunity to testify today on the findings of Falling Through the Net: Defining the Digital Divide, the study released by the Commerce Department earlier this month.

President Clinton and Secretary Daley released Falling Through the Net on July 8, 1999, in Los Angeles during the President's New Markets tour; and, during the tour, the President and Secretary Daley discussed the fact that, even though information technology underlies much of our Nation's economic growth, far too many Americans are left out of the digital economy and, as a result, the digital divide, that is, the divide between the haves and have-nots in information technology, has become a critical economic and civil rights issue.

Access to new technologies, such as the computer and the Internet, will be keys to the future economic success of any American business, community or individual; and, increasingly, Americans use the net to find jobs, contact colleagues, locate public information or take courses on line.

Electronic commerce is helping small companies compete and entrepreneurs in rural, remote and traditionally underserved areas reach out to the rest of the world.

Familiarity with new technologies will also prepare more Americans for the high-tech workplace of the 21st century. Because of the increasingly important role of these new technologies, Secretary Daley concluded that ensuring access to the fundamental tools of the digital economy is one of the most significant investments our Nation can make. And as we enter the 21st century, it will become even more essential to ensure that all Americans, rich or poor, urban or rural, black or white, Hispanic or native American, can reap the benefits of these new technologies.

Falling Through the Net provides a starting point in bridging the gap between the Nation's rich and poor. This is our third report examining census data, looking at the digital divide, and we anticipate that it will serve as an important diagnostic tool to assist policymakers in the private sector in formulating methods to provide greater access for more Americans, and today I would like to provide for the Subcommittee several slides showing some of our key findings.

These slides illustrate that, overall, Americans are far more connected than they have been in years past. On the other hand, we have also found that there are alarming disparity based chiefly on income, education, race and geographic location in which group of Americans have computers and who is on line. Equally disturbing, many of these disparities are growing, and let me turn to the first slide.

Ms. MILLENDER-MCDONALD. It shows this room and everyone will be in the dark if we don't get online.

Mr. IRVING. What this chart demonstrates, that telephone penetration has stabilized, that computer penetration has nearly doubled in just a 4-year period and that Internet penetration in a 1-year period from 1997 to 1998 rose by more than 40 percent.

When you look at the income, the slide is almost a straight line up. You will see a disparity, that under families at 5,000 to 10,000 have a lower penetration rate than households under 5,000. We believe the reason for that is primarily because under 5,000 reflects a number of students. But one of the things you will notice is that family income is a huge determinant, and if you have a $75,000 income, you are five times more likely than a household with less than $10,000 to own a computer.

We have also found that whites and Asian Pacific Americans have the highest rate of computer ownership—whites at 46 percent, Asian Americans at 55 percent—and whites are almost twice as likely to own a computer as African American or Hispanic American.

This is the so-called digital divide right in here. This is the gap between white America and black and brown America. The gap increased. In 1994, the computer penetration gap was 14.8 percent between whites and Hispanics. Today, it is 21.8 percent. In 1994, the gap between whites and blacks was 16.8 percent. Today, it is 23.4 percent. And this difference in here is the so-called digital divide.

The west is the clearcut leader for PC ownership. Approximately 50 percent of western households own computers. In the south, it is approximately 38 percent, a 10 percent difference. And northeast central cities and the rural south have the lowest overall penetration rates. So if you are rural or central city, you are disproportionately less likely to have computer access.

Again, when we look at Internet we have almost that same kind of a hockey stick curve. Again, you will notice the anomaly under 5,000. Again, we think that is because of students. But households with a $75,000 income are seven times more likely to use the Internet than those households earning less than $10,000. And, again, this is a digital divide in regard to Internet access; and, again, it has grown. It went from 12.5 to 19.5 between whites and Hispanics and increased from 13.5 to 20.7 percent between whites and blacks.

Interestingly, one point that is not on the graph is that at $75,000 a year household income the gap virtually erases itself. There is almost no statistical difference. You will find that in your report. It is not on the slides.

The west leads in home Internet access at 31.3 percent. The south again is the lowest, and northeast central cities and the rural south again have the lowest rates of any region.

And quickly, with regard to regions, 32.7 percent of Americans have use of the Internet at any location. That is home, work or schools or libraries.

One of the most interesting statistics we found is that whites have more Internet access at home than African Americans or Hispanics have anywhere. The overall cumulative rate, home use, work use, school, library, community center, at a friend's house for African Americans and Hispanics, is 19 percent and 16 percent respectively, but white Americans just home use is 26.7 percent.

And where people use it outside of home is actually interesting, also. White, nonHispanics, are much more likely outside the home to have access at work. What you will notice is the blacks and Hispanics are much more likely to have it at community centers, at schools, public libraries and similar kinds of public institutions as opposed to work; and blacks and Hispanics are more likely to use the Internet for educational purposes and for job searches.

We also found that low income and lesser educated Americans are more likely, when they use the Internet, to use the Internet for things like looking for jobs, getting educational skills, than are their more highly educated or higher income counterparts.

Thank you very much.

Chairman PITTS. Thank you. Thank you for that slide presentation.

[Mr. Irving's statement may be found in the appendix.]

Chairman PITTS. Now we will go to Ms. Lewis.

STATEMENT OF MAUREEN LEWIS, GENERAL COUNSEL, ALLIANCE FOR PUBLIC TECHNOLOGY

Ms. LEWIS. Good afternoon, Chairman Pitts, Congresswoman Millender-McDonald, and other distinguished members of the Subcommittee. My name is Maureen Lewis, and I am the General Counsel of the Alliance for Public Technology or APT. Thank you so much for inviting me to discuss the alarming growth in what has come to be known as the digital divide.

Unfortunately, the divide is wide and deep, and it describes the disparity between those who have access to information and new technologies and those who do not. The divide has the potential of exacerbating the problems of people who already lack quality education, affordable health care, satisfactory employment and decent housing.

Telemedicine, local and distance learning, and telecommuting, among other applications, are possible through emerging high-speed, high-capacity networks which permit users to send and receive voice, data, graphics and video using telephone, cable, wireless and satellite technologies. These broadband networks can connect people and help communities to address some of their pressing problems but only if the networks reach everyone, everywhere.

For more than 10 years, the Alliance for Public Technology has been advocating for public policies that promote access to affordable, usable information and communications tools for all consumers, regardless of their income level, place of residence or physical limitations. APT is a national, nonprofit coalition of individuals and a variety of organizations, such as the National Urban League, the American Foundation of the Blind, the National Association of Community Action Agencies, the National Education Association, and many other organizations that serve senior citizens, people with disabilities, low-income families, rural residents and small business owners.

Recently, APT has been defending the interests of consumers in the telecommunications revolution by urging the Federal Communications Commission to implement section 706 of the 1996 Telecommunications Act. That provision commands State and Federal regulators to encourage the reasonable and timely deployment of

advanced telecommunications capabilities to all Americans through the use of various regulated methods and market incentives.

Well, in 1999, the FCC issued a report in February that concluded that deployment of advanced capability is proceeding satisfactorily. Well, the Alliance disputes this conclusion and remains very concerned that new high-speed network providers are bypassing many inner city and rural areas, competing instead for lucrative high-volume large business users. Consequently, millions of residential and small business consumers are falling into the digital divide.

To combat this problem, APT has been advocating that the FCC undertake a number of measures, including eliminating certain rules that we believe discourage the large telephone companies that currently have the most ubiquitous network that can reach more people more quickly from deploying broadband infrastructure.

In addition, the Alliance has urged the Commission to actively stimulate deployment of advanced technologies in communities that have been left behind. For example, the Alliance has suggested that the FCC develop policies that foster partnerships between community-based organizations which pool their demand for telecommunications services and service providers. The partners will then work together to develop technology applications that address the critical needs of traditionally underserved communities.

APT believes that these partnerships will help to educate communities about the benefits of telecommunications infrastructure while demonstrating to providers the viability and sustainability of markets they typically overlook as unprofitable.

The Alliance has long believed that community efforts to aggregate demand for telecommunications products and service can help to attract providers. Accordingly, APT has suggested that Congress clarify that incumbent local telephone companies may offer at wholesale rates digital subscriber lines, a broadband technology that is offered through conditioned copper telephone lines, and other advanced services to entities that are ineligible for the wholesale rates that currently apply only to telecommunications carriers.

One of the major barriers to demand aggregation is the absence of meaningful economic incentives for communities themselves to undertake the cost of aggregating their demand. Therefore, the availability of wholesale rates for advanced services could provide an important catalyst for community-based organizations, municipalities, academic, medical and other nonprofit organizations to resell advanced services to residents and small businesses.

Another way of promoting demand aggregation has been an effort that APT has undertaken with the National Association of State Regulatory Utility Commissioners to develop a proposal that enables State and Federal regulators to work together on implementing section 706. The proposal asks the Federal Communications Commission to convene an ongoing Federal/State conference on advanced services to address the challenges of providing advanced services to low-income and rural communities and to people with disabilities.

The conferees, with input from consumers, industry and other stakeholders, would, among other things, monitor the scope and pace of advanced telecommunications deployment; develop deploy-

ment strategies that include private initiatives and leveraging Federal programs of the National Telecommunications Information Administration, the Rural Utility Service and the Small Business Administration, among others; disseminate best practices and other information; and experiment through opportunities to encourage investment of private resources through education and through regulatory methods in "706 zones" as ways of promoting broadband deployment.

Thank you very much.

Chairman PITTS. Thank you, Ms. Lewis.

[Ms. Lewis' statement may be found in the appendix.]

Chairman PITTS. Mr. Miller's testimony will conclude the final panel.

Mr. Miller.

STATEMENT OF HARRIS MILLER, PRESIDENT, INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA

Mr. MILLER. Mr. Chairman, members of the Subcommittee, when Winston Churchill was Prime Minister, he was approached by a leader of the British Women's Temperance Union in Westminster Hall. The woman said, Mr. Prime Minister, do you realize that all the alcohol you have drunk in your life would fill half this room? And Churchill looked up at the ceiling and said, "So far to go and so little time." Clearly, the room that she saw as being half full he saw as being half empty; and so, as I testify today on behalf of my 11,000 IT company members, rather than referring to this as a "digital divide," we prefer to call it as a "digital opportunity."

For the reasons I will outline, this issue or its perception is very important to my members and my industry which is at the forefront of electronic commerce. Based on our own surveys, we see a doubling of electronic commerce in just the next 6 months. Given this dramatic growth, assuring the opportunity to access the Internet and to participate in the digital economy is not just an empowerment issue, it is an economic performance issue. So let us talk about the digital opportunity.

As Mr. Irving discussed, we find that black and Hispanic households are far less likely to have Internet access than white households. I note that between 1997 and 1998 Internet access jumped 40 percent across the board, but disparities exist for factors such as income, race, education and household type.

I do not believe that the numerical disparities reported by Mr. Irving are unbridgeable, and I believe natural markets forces, as opposed to government intervention, will quickly fill the breach. The opportunity here is for technology sellers, including those who create the content to transmit on the web and those who want to sell electronically, to work with their actual and potential customers to make this marketplace work and to realize the full digital opportunity.

What are some of the factors involved? Well, the World Wide Web is just 6 years old. Yet, we see almost one-third of all U.S. homes tapping into the Internet. Typical technology cycles take 20 years. The web has gone mainstream in less than one-third of that time, a phenomenal rate of adoption. This is in large part a func-

tion of price. The cost of personal computers and related equipment has nose-dived.

Just last week the Federal Communications Commission released a thoughtful report which traced how government non-intervention in the data and information market contributed to the development of the Internet. The Commission has tried to maintain essentially a hands-off approach to these markets, and it deserves great credit because these policies have led to the quick adoption of Internet technology.

As a result of the FCC, we all enjoy the benefits of competitive marketplace. The incredible increase in performance with lower prices brings the Internet within the reach of a majority of consumers, but it does not seal the deal. To be successful, technology must solve a problem or it must scratch an itch.

Clearly, economics plays a major role in whether you are the first kid on the block to have a GPS mapping system in your car or a Palm Pilot in your pocket. Economics aside, I think that people, regardless of class or origin, are different and naturally take different approaches to technology adoption. So if affordable technology is the first plank in my digital opportunity platform, making it compelling for people who are currently not part of the digital network is the second.

Convenient access is the third critical aspect of a true digital opportunity. Internet access is clearly a good situation that is getting better every day. In fact, according to the FCC, over 6,000 Internet service providers offer dial-up service, and 95 percent of Americans today can shop from among at least four of these local companies. In classrooms, Internet access has chalked up gains from 35 percent just 4 years ago to 51 percent last year. Convenience and choice are bringing the Internet home to consumers, no matter where those homes happen to be.

Bandwidth is still critical. Demand is growing even faster than the growth for more digital power. The answer is simple: competition, especially in the so-called "last mile" to homes and small businesses. Aggressive enforcement of the 1996 Telecommunications Reform Act is essential if we are going to give consumers more bandwidth and more options to obtain bandwidth at a lower price.

Let me add a word about the e-rate, the program that pays for Internet access for schools and libraries. We have actively participated in debate defending the issues of specific interest to the IT industry. ITAA believes that schools and libraries should have access to the services of the broadest selection of possible vendors in order to select the most cost-effective provider of Internet access.

But even if we have affordable price, compelling need and easy access, the digital opportunity is still not complete. I refer to a woeful lack of participation by most minority groups in the information technology workforce. The problem is not small-minded employers raising barriers to entry. Rather, it is a shortage of appropriately skilled and educated professionals in the pipeline. As an example, last year, according to the Computer Research Association's Taulbee Survey, only 10 African Americans received Ph.D.s in computer science and only six Hispanic Americans did likewise. Similarly, only 2 percent of undergraduate computer science degrees were awarded to African American and Hispanic Americans.

These numbers are unacceptably low, both from the perspective of finding this common ground and, frankly, finding workers period for the IT economy. Our own studies indicate that one of ten jobs for computer programmers now goes begging.

We have set ourself on a course to attract underrepresented groups to the IT industry. This issue has been front and center at the National IT Workforce Convocations we held in both 1998 and 1999. We are currently working with the White House to assess this situation, and this month cosponsored an industry forum on the topic at the National Institute of Standards and Technology. And we are also working with programs designed to outreach to people with disabilities and low-income women.

So the question is, do we have a digital divide or a digital opportunity? The future, Mr. Chairman, is what we want to make it. To reach its greatest potential, we must strive in every way possible to give this incredible resource its greatest possible reach. The issue is how we achieve it. We say the market has worked wonders to date, and I assure you that this economic show is just starting.

Thank you very much, and I will be happy to answer any questions you and the colleagues on the Subcommittee may have.

Chairman PITTS. Thank you, Mr. Miller.

[Mr. Miller's statement may be found in the appendix.]

Chairman PITTS. We will now begin the first round of questioning, and I will start with Secretary Irving.

Mr. Irving, you speculate as to why certain groups are not embracing computers and the Internet. Can you speculate as to why they are not doing this? Obviously, lack of infrastructure would inhibit some, but what about the rest? Do some people just think that technology does not have a place in their lives? If so, what can be done to enhance awareness?

Mr. IRVING. A number of things. I think in America it is interesting you will see more computer executives on the front page and covers of magazines than you will see celebrities on some weeks. There has been the adoption of geek chic in some parts of America, and it hasn't expanded to some of the minority communities.

I think the marketing of some computer companies in which they will look at the high-income—if you are a businessperson, you go for the low-hanging fruit. If you are a high-income family and if you look at golf magazines, travel magazines, lifestyle magazines geared toward upper income people, you will see targeted advertizing looking to sell computers to those folks. I think if you look at Ebony, Jet, Hispanic business magazines and other minority-oriented magazines, you won't see the same kind of targeted advertisements. As you get all the low-hanging fruit you may see changes in that and as computer prices come down below 1,000, but I also think there is something cultural that is going on different. There isn't as much on the net of interest to some communities.

Asian Americans have the highest penetration rate of both computers and Internet access, and I think part of the reason for that is, if you are an Asian American, given the different number of languages, the way you might find content of interest to you may be by going on the net. If you are an African American, Hispanic American there may be free over-the-air broadcasting options, some

local options through newspapers, and you may not feel the same incumbent need. And, to date, if you look at the top 100 web sites, none of them are by, for or about African Americans or Hispanic Americans, and that has got to change, the compelling content, that Harris was talking about.

So I think it is a combination of cultural, economic, how the industry markets itself, all of those things are playing a role. But you hit a very critical issue, Mr. Chairman, and that is infrastructure. The infrastructure in our inner cities and in our rural areas, particularly the rural south, has got to be focused on as well, particularly as we move to the broadband networks that both Ms. Lewis and Mr. Harris spoke about.

Chairman PITTS. Thank you.

Ms. Lewis, what kind of feedback have you received from communities that have not benefited from advanced technology communications capabilities? Are members of these communities speaking out?

Ms. LEWIS. Yes. In fact, there is a great alarm among many members of traditionally underserved communities. As more information about technologies become available through more traditional media, people are beginning to understand it. They are getting left out.

For example, the Federal Communications Commission just undertook a rulemaking to help address the needs of people with disabilities who, as you can imagine, could greatly benefit from advances in technology. Those technologies can provide much greater independent living opportunities, much better employment opportunities for those folks who suffer from disabilities.

You can also see—and I have heard personal stories about people who understand the potential that technology can offer but don't have access, and they find it very frustrating. So it is a growing problem and one that I hope we will be able to address quickly.

Chairman PITTS. Thank you.

Mr. Miller, you referred to the digital opportunity rather than the digital divide. Will the rapid unfolding of new technology create an even greater rift between the technology haves and the have-nots?

Mr. MILLER. I think on the contrary, Mr. Chairman. What we are going to see is, as new technologies are rolled out—both hardware and software—more and more price pressures downward. And so at least that part of the equation which I mention as one of the planks of achieving this digital opportunity will be dealt with. There is going to be price pressures coming down. Computers that you bought a year ago for $1,500 are now $500. The personal digital assistants, the Palm Pilots and devices like that, their prices are coming down. So those opportunities are going to be there.

I think the real challenge is, again, scratching the itch. And the reason I refer to the digital opportunity is I am not buying any more personal computers for my home. I have got one for me, one for my wife, and one for each of my teenage kids. I may upgrade one every 3 or 4 years, but the personal computer industry isn't going to sell me any more personal computers. It is to the families that they haven't yet been sold to, that haven't yet accepted the compelling case that there are real opportunities, that industry

wants. For computers to get to the penetration rates of VCRs or televisions, to get up to 70, 80, 90 percent, which is where the companies all want to be, because they all want to sell as many as they can—that is really how they make their money. They are going to need to continue to bring the prices down and continue to find a way to attract people in those communities which are currently not purchasing those products so they can blanket the entire marketplace, not just particular segments of the marketplace.

Chairman PITTS. I have just a little bit more time.

You express concern about the low number of minorities in the IT industry. What is the ITAA or its individual members doing to attract new workers or further educate current workers to move forward within the industry?

Mr. MILLER. It is really a multiplicity of activities, Mr. Chairman. Our attitude is letting a thousand flowers bloom. It is not just going to be traditional colleges and universities.

For example, we are talking to some historically black colleges and universities that have not been part of this educational program which is necessarily focused on training IT workers. Some HBCUs have, but a lot of them have not. So we are starting to reach out to them.

We are working more closely with community colleges which frequently do a better job of reaching out to minorities and people who don't have as much income or who are not thinking about going to college because a lot of the skills can be obtained through a community college program. For-profit schools are also doing an energetic effort. We are also looking at working with particular organizations. We have been talking—for example, I know Mr. Fulton is testifying in your next panel—to the National Urban League because we have to find channels into those communities to help convince people that they should be part of the IT workforce.

Chairman PITTS. Thank you. I see my 5 minutes are up.

Ms. Millender-McDonald.

Ms. MILLENDER-MCDONALD. Thank you, Mr. Chairman.

I am going to first go to Mr. Miller, because I want to see whether I either misunderstood you or understood you and want to get a clarification, one or the other.

You spoke of a few Ph.D.s that African Americans have, and I hope you were not translating that into the need for one to be proficient on a computer one has to have a Ph.D. Because clearly there are many folks who even develop computer programs at the age of 14, even before they go out to universities and colleges. So I would like for you to clarify that, if I misunderstood what you said, because certainly Ph.D.s should not be a factor in one becoming proficient on the computer.

Mr. MILLER. I agree with you 100 percent, Congresswoman; and if I misspoke or misled the Subcommittee it was not my intention. But I was trying to make a more generic point. We believe that getting people from minority communities who are not currently a major part of the IT workforce excited about the IT industry is one way, one element of achieving this digital opportunity; and the fact that such a small number of African Americans and Hispanic Americans got Ph.D.s, that such a small percentage of the computer science graduates from our 4-year colleges and universities

are minorities, is indicative of the fact that we haven't been able to penetrate into those communities and convince them about the great opportunities of working in our industry. Does that necessarily translate into more penetration into minority communities? Not necessarily. But we think it is one element of making sure we get this digital opportunity achieved across the board.

Ms. MILLENDER-MCDONALD. Well, I like your optimism about digital opportunities. However, I suppose I still have to be a little pessimistic about it, given the fact that we do not see these opportunities at all in the inner city, especially in the Watts and Compton and Lynwood areas.

I am interested, though, in your presentation as I have tried to underscore it. You spoke about the importance of electronic commerce and the Internet, and I have heard that theme going through just about all three of them. Clearly, electronic commerce is an important factor, and the word commerce or economy and all of that coming together, that is the main source and the main problem.

In this economy, we are talking about folks who do not have jobs to even gain $10,000 a year or have $10,000 incomes. So how do we expect this electronic commerce to play in inner cities or to even have this type of concept brought into our communities if, in fact, we do not have the computers, we do not even have, as you said, the aspirations of even going into that because we don't know how exciting it is if you do not have the opportunity to surf on the Internet, if you will.

Mr. MILLER. I think a couple of things are going to be important here. The e-rate is bringing the computers into the public libraries and into the schools. Even if an individual can't afford one or doesn't choose to make it enough of a priority to put it in his or her home, at least you have a chance to be exposed to it. Again, if there is a digital divide, I would say it is not just economic, it is more age. Young kids, if they see it and understand the excitement of it, they can be the people that go home to mummy and daddy and say, "Mom, dad, I just downloaded some really neat music off the Internet; I don't have to go across town to Tower Records or wherever I buy; I can buy this stuff off the Internet." Which may not make mummy and daddy real happy but at least they have that opportunity. They can also say, "Mom, dad, I was able to do my homework on the Internet."

Ms. MILLENDER-MCDONALD. I wish I could agree with you on that. Unfortunately, as I have gone to my schools, there are fewer computers in the schools. They are old computers that have been given by computer companies to them. They are no longer working. There are about 20 to 25 kids per two computers, so they never build up that excitement about it because they never get an opportunity to work on it. If they do, it is such a short time. So e-rate would be a very effective tool for us to begin to work on that, but at this juncture, we do not have it. We need that. We need to work with you in concert with others to bring this type of concept into our schools and to our community.

Mr. MILLER. I will be glad to work with you on that, Congresswoman.

Ms. MILLENDER-MCDONALD. You spoke about HBCUs. How many of those colleges and universities are working with you to try to bring this whole Internet and software and computer concept into our communities?

Mr. MILLER. I am currently working on a board organized by Mr. Mark Warner, who is a businessman in Virginia, just working with the Virginia HBCUs. That has been a pilot program, and there are currently, for example, 65 students out of those historically black colleges and universities who are in mentoring programs working with companies in northern Virginia where they are able to work during the summer, or during the school year. That seems to be a most effective way to start.

We have begun discussions now trying to expand that beyond Virginia. We have had some preliminary conversations, and I will be able to give you a further report probably in 3 or 4 months. We are just going through the process right now. In fact, we had a meeting, as I mentioned, at NIST about 2 weeks ago, which was very productive, and now we are trying to figure out the most effective way to implement that.

Ms. MILLENDER-MCDONALD. I certainly would like you to get back with me on this because it is very important.

Again, when we talk about perception, this perception is real. It is absolutely critical in our communities, because we don't have any of the tools, we don't even have the knowledge, we do not even have teachers who come to us ofttimes with the knowledge of computers, a literacy, so, you know, to enable them to teach it to the students. So you have just——

I think, getting back to what Ms. Lewis said, that infrastructure is not in place. Therefore, you cannot teach what you don't know, and they cannot learn what has not been taught to them. And so it is just critical for this natural market that you talk about, that you help me to understand where they are and who they are and how we can tap into them. Because government has to intrude when no one else is going to sufficiently provide the opportunities for these youngsters to get digitized, if you will, to get on this digital opportunity that you are riding the crest on. And we know that the workforce is going to be the minorities, for the most part, and women, and we have to train and to get them geared up for this new millennium, and the only way we can do that is to have you help us to make that happen.

I will talk to the others, but I see the chairman is flickering with his speakerphone.

Chairman PITTS. Thank you. We have been called for a vote. Let us take one more 5-minute round of questioning before we go to the floor. Mr. DeMint.

Ms. MILLENDER-MCDONALD. I hadn't finished.

Chairman PITTS. Your first 5 minutes is up. You may continue in the next round, if that is okay.

Mr. DEMINT. Thank you, Mr. Chairman.

As you probably know, one of the goals of this Committee is to use private sector, free enterprise concepts to make sure there is equal opportunity for everyone in America, and the Internet certainly represents one of those key opportunities. As I sit here and listen to you, I am appreciative that you are sharing your ideas and

hope that you can help us determine how we can create equal opportunity to the Internet without creating another Federal entitlement program that cannot possibly keep pace with this industry. This is one of those things that is changing so quickly, it is going to take continued private sector involvement, competition, a lot of the free enterprise ideas to keep it alive and active. So this is not something we can do as a Federal Government, but we can act as a catalyst in some ways.

So my question to the panel is, is there a role for the Federal Government here? Is the Federal Government now creating any obstacles to this happening? Are there incentives that we could offer to make it happen?

And I will start to my far left to just get some quick comments before we have to vote. Mr. Irving.

Mr. IRVING. Yes, there is a role for the Federal government. I think one of the key roles is to continue promoting pro-competitive policies.

I have to disagree with my friend, Mr. Miller, just briefly. I think the administration and Congress have been at least as responsible to hands off high-tech, hands off the Internet policy as the FCC, which shouldn't have a role in the Internet in our mind, which should be leaving this alone. And I think for the last 6 years, Republicans, Democrats, administration and Congress have all agreed that we need to grow this using the private sector, but there are also other roles.

There are some market dysfunctionalities. I mean, one of the things we have recognize that 75 percent of white families don't have access to the Internet. When we get into rural America we are talking about a significant number. Native American families don't have access to the Internet, low-income families, rural families, and some of those communities we find that having access in public centers is important. So the e-rate becomes important. Community technology centers become important places. If I don't have a computer at home—and 90 percent of African Americans and Hispanic Americans don't have computers at home, roughly 90 percent of low-income white Americans don't have computers at home. They need access today. And having access in schools and libraries and computer centers can be helpful.

We also need to continue trying to use the bully pulpit, trying to get things like what Sysco Company is doing with its network academies, what the Gates Foundation is doing with libraries, what AOL Foundation is doing with regard to its philanthropic activities, trying to make sure the companies are promoting, when they have a 286, 386, Pentium I, Pentium II, that they are giving that computer to a school or library or community center that can use it. And Members of Congress and the administration can be key there.

And there are a number of other things I could throw out, but I think one of the things that I think is very, very important is we need to try to find ways of making sure that the industry is training American children for the jobs that are coming in the future.

I am not trying to get into H–1b, but it is a tragedy we have an industry that is virtually devoid of rural workers, virtually devoid of black and brown workers, and we have to import people for jobs

that pay 40, 50, 60, $70,000 a year, and we need to find ways of working with HBCUs, community colleges, tribal colleges, rural colleges, to give our young kids the skills that they need.

Mr. DEMINT. Ms. Lewis.

Ms. LEWIS. Yes. In fact, I do believe the government has an important role to play, and while I do understand the 1996 Telecommunications Act's emphasis on competition as a way of helping to encourage the widespread, ubiquitous deployment of advanced telecommunications infrastructure, there will be some pockets in some communities where competition won't come readily, and it may be important for the government to step-in in those instances, and some of the partnerships that I talked about earlier are some of the ways we think that can occur.

The other thing that government can do I think is to continue to promote programs like NTIA's TIIAP program, which helps to demonstrate throughout communities how technology can be useful and important in addressing various community needs.

I also believe continued support for the e-rate program is necessary, and I understand that there is legislation that will help provide some Federal funding for community technology centers. Again, providing more opportunities for access is important, but the Alliance's view is to try to bring access into everybody's home. So we hope that policies to promote that end can occur.

Chairman PITTS. You still have a minute left.

Mr. DEMINT. Mr. Miller, comment before we take off?

Mr. MILLER. Number one issue for government is education and worker training. Again, if people are not understanding the Internet, if they don't have the skill sets, then whether they are actually going to become a computer worker or just happen to use a computer for their lives, then we have a problem.

Yesterday, one of my CEOs was calling for a GI plan for the 21st century. We may to have go that far. That wouldn't just apply to African Americans or Hispanic Americans. That would be across the board. But, obviously, people in lower incomes would be able to take most advantage of that. So, certainly training and education.

Secondly, I agree with Mr. Irving. Competition, particularly in the last mile. We need to have competition to bring the prices down. It gives people options.

And, thirdly, since this is a Small Business Committee, I will repeat something I suggested to the full Committee, which is more training for small businesses in what electronic commerce is all about, working with the SBA to set up training and education programs. And many of those programs could be targeted at African American and Hispanic American owned businesses or tribal businesses. It doesn't have to just be suburban white owned businesses. It could be businesses across the country. And if you get those small businesses hooked on the Internet and seeing the advantages of computers, many of those people will take it into their homes also.

Mr. DEMINT. Thank you, Mr. Chairman.

Chairman PITTS. Thank you. I would like to remind everyone we will have another round of questions for this panel, but at this

point we have got to go vote. And so we will recess, and I would ask the members to come back right after the vote. Thank you.

[Recess.]

Chairman PITTS. The time of the recess having expired, we will continue the first round of questioning, and I think we are ready for Mr. Udall at this time.

Mr. TOM UDALL. Thank you very much, Chairman Pitts, and thank you to the members of the panel for being here today and sharing your insights with us.

I also represent a district that is very much like the areas that have already been described as underserved, where there is a digital divide. It is northern New Mexico—Santa Fe, Taos and a number of other rural areas—where we have many native Americans and many Hispanics that aren't hooked up, and there is clearly a digital divide. I was very interested to hear from Maureen Lewis about FCC rules and regulations that are holding us back, and I was wondering if you could tell me specifically what these rules and regulations are, because I am aware that the phone company that is in the district is not putting in the infrastructure. Could you please describe specifically for me those rules and how you see how they should be changed.

Ms. LEWIS. Certainly.

One of the things that seems to be a deterrent to widespread deployment of high-capacity infrastructure has to do with the inability of some of the larger telephone companies to have their traffic cross what are called toll areas, and that has to do with the local telephone companies being confined to local telephone service and not being able to provide long distance service.

One of the things that I know that some Members of Congress are talking about is providing some relief to large carriers that will allow them to cross LATA boundaries with data so that companies will have more incentive to roll out capacity that will serve underserved areas.

One of the other things that the FCC is considering in some proposed rules is requiring companies in order to have relief from some of its current rules is to set up separate subsidiaries to offer advanced data services. Those separate subsidiaries have the incentive to act like competitive carriers and compete for some of the low-hanging fruit that Mr. Irving referred to earlier; and, as a consequence, there won't be incentive to go to some of the underserved areas that APT is most concerned about.

So in APT's view companies that are able to provide data service without the additional expense of setting up a separate subsidiary may have more of an incentive to penetrate further into underserved markets than they might otherwise.

Mr. TOM UDALL. Thank you. And that is I think what we need to do in northern New Mexico, and I imagine it is what we need to do in a lot of the rural areas around the country. I think a lot of us are in the same boat on that.

Mr. Irving, your report indicates that—and I am repeating myself here a little bit—but that native Americans and Hispanics in rural areas are falling behind; and I am wondering, you know, what special steps should be taken to, that you believe, to address this aspect of the problem.

Mr. IRVING. I think the problem is particularly acute in New Mexico, Congressman. I spent some time in your part of the world, and I can tell you that, right now, 87.1 percent of New Mexico has telephones, and that compares with about 95 percent for the Nation. And a large part of that statistic is skewed because of the low telephone penetration rate on native American reservations. We have reservations where two out of three people don't have a phone. Many reservations only half the people have a phone. And across the Nation rural native Americans are 75 percent penetration, meaning one out of four native Americans don't have a phone, by far the least served people in this country.

And I think one of the things we need to focus on are newer technological solutions. It is more expensive to run a telephone line out to distant rural areas, and we need to start letting technology and the market work to some degree by looking at wireless technology, satellite technologies as well, and it is a place that government can work by trying to create incentive and trying to make sure that we have the right regulatory policies that will afford that.

But one other thing that I found interesting is Hispanics, native Americans, low-income people, are more likely to use community centers and technological centers, and we have to have those available. Because when you have a community where nine out of ten people don't have a computer or Internet access on the day, they are not going to have it near term for many of those families, but they cannot afford to go 5, 10, 15 years without access anywhere.

I do think that, in addition to getting new technological solutions to the telephone and Internet penetration to the home, we have got to get these technologies at least in the community for people; and one of the benefits of having community centers is you have trained people who can teach people how to use these technologies in those centers, opposed to just putting a computer there and folks have no idea how to use it.

Mr. TOM UDALL. Thank you.

And, Mr. Miller, do you have any thoughts on either one of those subjects?

Mr. MILLER. Just to put an emphasis on competition, Mr. Udall.

About 2 years ago, my family and I took a vacation to Chile, and we started in Santiago and then went to Patagonia. We were closer to Antarctica than we were to the equator. I walked into a phone booth. There were six telephone companies to choose from, including one of the local Bell Operating Companies here in the United States, which was down there competing. It was cheaper for me to use their phone service to call back to the U.S. than it was to use my long distance calling card that I had brought with me from the United States. So when competition comes, there is money to be made doing telephone calls.

Again, maybe it is not a land line, as Mr. Irving suggested. Maybe it is wireless or satellite. But, believe me, these companies want to do business. But as long as there are too many rules and regulations and lack of competition, you are going to find these kind of situations where the market is not going to work properly. People who frequently suffer the most are people who are less advantaged because they can't figure the work-arounds. They can't deal with the work-arounds. So we have to make sure that competi-

tion comes to the marketplace so that native Americans have just as much access to telecommunications as people in wealthy suburbs do.

Mr. TOM UDALL. Thank you very much.

Chairman PITTS. Thank you.

Mr. English.

Mr. ENGLISH. Thank you, Mr. Chairman.

Mr. Chairman, I, first of all, want to thank you for having this hearing today, because it has highlighted an issue which is of particular importance to a district like mine which does have rural areas, does have parts of the midwest, northeast, rustbelt area which has the potential to be underserved in this situation.

I am curious, though, one of the things that we have not covered in our discussion is how other advanced industrialized countries are approaching the digital divide. They obviously have some of the same challenges, they have some of the same problems, and given that this is obviously an issue which is going the affect our long-term competitiveness, Mr. Miller, can you comment on what you have seen in other countries, and are there market-oriented solutions that are being tried there or is it primarily a government-driven response?

Mr. MILLER. Thank you, Mr. English. An excellent question.

We have done a study, which I will be glad to supply to the record for the Committee, called Digital Planet which actually compares software, hardware, Internet access in 50 different countries, and those data are very telling. But, in general, I would say in the industrialized countries of the world that have the highest rates of telephone access, countries like the Scandinavian countries and Canada, they really have relied primarily on the market forces and, as Mr. Irving suggested, not just traditional land lines but huge use of cellular telephones. In fact, there is a front-page article today in The New York Times about how cellular penetration is so much higher in parts of Europe and Asia because they, in a sense, skipped over the cost of installing a land line and went right to the cellular lines.

In terms of Internet access, unfortunately, most other countries of the world, including the developing world, are well behind us, and one of the reasons is too much regulation. For example, in many cases, an individual from his or her home accessing the Internet pays per minute charges for the local dial-up. So even though you hear stories this week about free Internet access in Britain, so that even AOL is waiving its monthly fee in Britain, the reports can be deceiving. Yes, the fee for the Internet access is free, but the per minute charges are clicking along. So if you stay on line for 15 or 20 or 25 minutes, you suddenly find yourself with a $10 or $15 or $20 phone bill. Whereas here, in most cases, that is a local call and therefore just part of your local monthly charge.

So in many countries, one of the reasons that they are anywhere from one year to 3 years behind us in terms of Internet access, even when you hold constant variables such as income, is because their charges for Internet access are too high, and that is because of the lack of competition in the marketplace there.

Mr. ENGLISH. Ms. Lewis, do you want to get your arms around this as well? I would be curious to get your observation on the international dimension of this problem.

Ms. LEWIS. I really can't speak to that issue, Mr. English.

Mr. ENGLISH. I appreciate that.

Mr. Miller, going back, obviously this is an issue that is going to have a big impact on the competitiveness of places within regions of the United States as well as internationally. Can you, from your international study, identify for us some of the pitfalls that we need to avoid. For example, some of the cul-de-sacs that other countries have tried from a policy standpoint and maybe we should be avoiding?

Mr. MILLER. Well, again, the number one pitfall is overregulation. When they tried to control access to the Internet through centralized services or the local monopolistic telephone company controls the Internet access, you get very high rates, very low take-up rates, very low competition. The other cul-de-sac, of course, are attempts to control content in countries like Singapore and Saudi Arabia. The Internet is such a wonderful medium that people have worked around it.

Let me tell you where I think the successes are; and I point, for example, to India as a success. Their success, even with a lot of problems that India has—and it is a 980 million person country, they have a lot of problems—in information technology is staggering because they made a conscious decision to combine industry, government and the education community in the early 1980s, to train an information technology workforce. Their workforce now is estimated to be between 350,000 and 400,000 trained computer programmers, which makes it the second or third largest in the world.

Now, what does that mean? That means when companies in the United States or Japan or Europe find that they don't have enough workers with the right skills to do particular jobs and they are looking for an alternative place to have the work done, frequently they turn to India as a location. The same thing is going on in China. It is going on in Ireland. It is going on in South Africa. It is going on in Israel. So they have figured out, if you will, the Rosetta stone here, Mr. English, which is having the trained workforce. If you don't have a trained workforce, people who understand these skill, then it is tough to be attractive.

So if the cul-de-sac is overregulation, I think the open road is training the workforce. Education. Obviously, India has a lot more people to train than 350,000, but if you are looking for a model of success, India is an example. It is even happening here in the U.S. In South Boston, Virginia, there is a project that was started about 3 years ago by some refugees from northern Virginia, who got kind of tired of the traffic and wanted to get out of here. And they started a company and they trained computer programmers there in the South Boston area. People who used to be in the more traditional tobacco industry down in South Boston, which is near the North Carolina border. And they developed what I call "offshore onshore," so that northern Virginia technology companies, instead of sending their work to India or Ireland or some other country outside the United States, are outsourcing work to this company in South Bos-

ton, Virginia. It is called the Software Factory, and that model, in "offshore onshore," I think, could be brought to a lot of rural areas around the country if we can get the people trained with the software skills they need.

Mr. ENGLISH. That is an exciting vista, and I appreciate your testimony.

Mr. Chairman, I will yield back the balance of my time.

Chairman PITTS. Thank you.

Mr. Davis.

Mr. DAVIS. Thank you, Mr. Chairman. I really appreciate the opportunity to be here. Let me just use the opportunity to ask a couple of questions.

I came because I am very interested in this subject matter, as obviously lots of people are. It seems to me that whenever we talk about disparities, immediately many people's mind goes to the whole question of race and ethnicity relative to trying to figure out the why of it. Then, of course, there are others who look at the whole question of economics and income. What can be done I think is what I am really trying to get at—if income has much to do with the disparities, what can be done about reducing the gaps of regulation, legislation? That is really my question.

Mr. IRVING. Can I take a crack at this?

The three biggest determinants we find—income, education and race—lower income people, lesser educated people and certain races are less likely to have access, and I think that a critical point for all of those is informing the communities about the importance of these technologies. I think mostly what is going to happen with regard to this technology there are going to be community-based solutions. They are not going to necessarily be solutions just out of Washington, though Washington can help, but communities have to be informed that if they are going to be viable competitors in this new economy, they are going to have to restructure their educational—at the school board level, at the individual school level investment has got to be made.

I keep getting questions from people, well, how can we afford to put computers in school when we can't afford to give kids books that are less than 30 years old or safe places to study? And I keep saying, this is the richest Nation in the world. We have to find a way to do both. We cannot have a child that isn't computer literate and send him out to Mr. Miller's workforce, just as we can't have a kid who can't read or do math and send him out to Mr. Miller's workforce. All of those skills are going to be necessary.

We are going to have a generation of entrepreneurs who understand that if they are going to compete in a global economy they have to have global connectivity and they have to make the investment. As you would make the investment in insurance, security, you have got to make the investment on connectivity. You wouldn't have a business without a telephone, you are not going to have a business in 2010 that doesn't have Internet connectivity. You better figure out now how to get there.

We need to figure out to make sure that our local officials understand that isn't a solution to age, it is not a solution to violence, to poverty or to health care, but it is one of the solutions. It is a tool that can be used.

Telemedicine, distance education are things that this technology empowers, and I think the problem is people are looking at this as an isolated issue and not as part of a holistic approach to governance and being a citizen as we go forward. And I think one of the things that Members of Congress and other Federal officials and industry can do are just inform people of the power of the technology to improve lives. But I think when people see this and have access to it, they get it and they will make the economic decision.

And what drives me to say that is, anecdotally, we haven't been able to dig this statistic out, but if you look at who is most likely to have a computer at home, it is a person whose child has access to technology at school or a person who has access to technology at work. If you use this, you understand it, you make the purchase for yourself. And the reason that native Americans, African Americans, Hispanic Americans and rural whites are less likely to have access at home, they don't have access at work and their kids are less likely to have access at school.

So we have to make this is a little bit more ubiquitous. The market is beginning to work, but it is not going to be a perfect fix.

I had to disagree strongly with Mr. Miller on one point he said. Broadband can create a bigger chasm. You are going to have people 20, 30, 40 percent of this Nation in 4 or 5 years streaming audio, the child he was talking about having audio at home. You are going to have 20, 30 percent of this Nation watching movies over the Internet, but who are those 60 percent who don't? Where are they going to be? And government can play a role in terms of making sure that this technology is deployed ubiquitously and fairly and that some folks aren't red-lined economically and electronically. And those are the kind of issues we have got to continue to be cognizant of.

This report every year gets a little thicker, with more questions. I think a question we will have to answer in the future is broadband access is a question we are going to have to start asking as well as wireless and other technologies, because they are all playing a role in the solution to the question you asked, Mr. Congressman.

Mr. MILLER. Can I just look at the question somewhat differently?

I am looking at the table on page 27 of Digital Divide, the top table which Mr. Irving's department did. What is very interesting is, if you get over $75,000 in income, Internet usage is pretty close, breaking out by race. Slightly higher for white nonHispanic and other nonHispanic but it is pretty close. But when you drop down to the next cohort, which is the $35,000 to $75,000 bracket, all of a sudden white usage is almost twice the rate of black access to the Internet. What has happened? Is it just income or is there something else going on that when people make $75,000 a year it doesn't make a lot of difference what their race is, but when you talk about the next cohort, it is so different?

My gut feeling is, and I don't have any data to support this, is that the difference has a lot to do with content and making the compelling case. That people in the $35,000 to $75,000 income range probably can afford the newer, lower priced computers and probably can afford the access, but they don't have a compelling

case. If I could figure out what it is which would appeal to the African Americans who are making enough to buy a computer but don't want to get hooked up to the Internet, I could become a rich entrepreneur on the Internet. I don't know what that is. I don't know whether Mr. Bob Johnson from Black Entertainment Television is going to figure it out or whether Steven Spielberg is going to figure it out. But someone is going to figure it out, and, when they do, I think they are going to bring their broadband just as much into the central cities and into the rural areas. Because they want to sell movies to everybody, they want to sell records to everybody, and they are going to push to make sure that they can reach into every community.

Mr. DAVIS. I thank you very much, Mr. Chairman. I see that the time has expired.

It seems to me that both of you are saying that education is the key, in a sense. Either way you cut it, education really becomes the key.

Ms. MILLENDER-MCDONALD. Would the gentleman yield for a second?

I just want to piggy-back on what Mr. Miller is saying.

Mr. Miller, usually the $35,000 range parents have smaller kids. They are in school. These kids still aren't getting computer learning, and a lot of them do not have medical coverage. So they are paying a lot within that $35,000 scope, and if their kids aren't being taught on the computers in school, then they will not be excited about bringing this information to the home and the home getting involved in it. So, really, as you look at $35,000 salaries, as I have looked at them, especially with women, there are so many things that they are having to provide to the family that they just cannot afford these computers.

Mr. IRVING. Can I add one thing, Mr. Chairman? Because there is one point, there is a graph in here that is kind of interesting that demonstrates that families that have two parents are much more likely to have access to the Internet than a family with one parent, for every income group above 35,000 and below 35,000, for every racial group except for Hispanics below 35,000, where it is roughly equivalent. So having two parents in the household, interestingly, is not intuitive, but two parents are much more likely to give their children connectivity than one parent. Every racial group, every income level, there is a huge gap, and that is just something that I think underscores what Congresswoman Millender-McDonald is saying, that there is something going on with our families that we need to focus on.

Chairman PITTS. All right. Thank you.

We are ready for our second round of questioning, and I will go to Mr. DeMint.

Mr. DEMINT. Ms. Lewis, you mentioned the e-rate, and I would just like a little more explanation of how that would work, how do you think that would help this problem, just briefly.

Ms. LEWIS. Well, the e-rate has I think been an effective tool helping to bring technologies to communities, and I think it is a wonderful first step to providing exposure to young children about the advantages, the possibilities that computer technology can offer.

But, unfortunately, there is a great disparity between homes that have computers and those that don't, and children's education, unfortunately, is impacted by that. So APT's goal is to further the penetration of computers not just to schools and libraries but to homes. But the e-rate is an effective, in my view, an effective way of providing some early exposure to communities that may not have any exposure at all.

Mr. DEMINT. You are not suggesting using the e-rate to get computers in homes but more in public places?

Ms. LEWIS. In public spaces. It is a way to help expose some communities that don't have, as Mr. Irving was talking about before, access at work and access in other places, to provide at least early learning for children, and then perhaps those children's involvement and excitement with computers can help stimulate some interest in their parents.

Mr. DEMINT. Mr. Miller, any comment about the e-rate, how it relates to what we are trying to do?

Mr. MILLER. I agree with what Ms. Lewis said. I think it is a question of exposure. I am a little biased, but if I were starting a school, the first thing I would do is put in the computers.

But I think the reality, as Ms. Millender-McDonald said earlier, is a lot of schools are striving just to keep erasers and chalk in supply. So the idea of getting computers in is far from them. So having this e-rate does enable them to bring in the computer technology which, in turn, exposes the children. In turn, you hope they go home and tell their parents to think about it, and next thing you know we will have everybody with the Internet. That would make my industry very, very happy.

Mr. DEMINT. Mr. Irving, I think I have gotten more calls and letters about an Internet tax than anything else, which would make it very difficult to ever suggest that. Is that what we are talking about or are there other ways to accomplish the same thing or just what would you add?

Mr. IRVING. Well, the e-rate is not an Internet tax. The e-rate is basically built upon an existing subsidy system. And we have had a system in for years where—I grew up in New York City, and my mom paid more in New York City so that my aunts in other parts of the world, in rural communities could access telephones at a subsidized rate.

What this basically does is take that rural urban subsidization system and use that same type of model to give some additional income revenue or dollars to schools in high-cost areas and low-income areas.

I always use the analogy of a cell phone. The first time I got a cell phone, I couldn't resist calling everybody I knew and then I got this bill and couldn't afford it. We don't want to have kids on line and school districts get that first bill and they found that they can't afford it. And the e-rate helps keep it affordable, particularly for high-cost areas and low-income areas, but it is not a tax on Internet users, and this administration and I believe this Congress would fight against any tax on the Internet. We want to see the Internet deployed as ubiquitously, as rapidly as possible, but that has to be in public spaces. Far too many Americans don't have access anywhere else.

Mr. DEMINT. Thank you. I yield back.

Chairman PITTS. Thank you.

Ms. Millender-McDonald.

Ms. MILLENDER-MCDONALD. Yes, Mr. Chairman, I really have so much here to talk about until I really need to take up the other time of the other members and would like to do that.

Ms. Lewis, I just want to commend you for your presentation and especially touching on the telecommunications products and services that will help attract providers, and I think through the e-rate this will be the conduit by which this happens. And certainly the CBC has gone on record encouraging the FCC to continue to expand and apply the e-rate so that our kids can have access to computers in the schools, and that is what that was intended to be.

I also want to commend you on your statement about small businesses falling through the cracks. Indeed, small businesses are the ones who are the job creators. If we do not put them online, give them the computers, technology that they need, then we will not have the jobs that are necessary to provide for us.

Mr. Irving, H–1b, absolutely. I just do not think we need to be going internationally to find workers and not train workers here. So the H–1b program that you are talking about or that provision of the law, I really did and will vote against again because we need to bring in people, we need to train people here in America for the high-tech jobs that we have here and not go overseas and bring people in. So I am adamantly opposed to that. I think that is what you spoke of.

Mr. IRVING. I don't want to get in trouble with the President, Vice President, Secretary.

Ms. MILLENDER-MCDONALD. That is all right. I have gotten in trouble with them. That is what I said, not you.

I will say, as you mentioned the program, I will reiterate my position on it. I really do think, especially with Silicon Valley and all of those high-tech programs we have in California, we do not need to have anyone going overseas bringing people in. So that is what I say.

Mr. Irving, and let me just say, we must recognize that government must play a role in providing the type of training and skills that will allow us to have a workforce 2000 that is equipped to move into this global workforce. I just want to bring attention to this panel and to those in the outer community that it was many administrations like the Rural Electrification Administration that was set up in the 1930s that established the rural services because the established electric companies would not do that.

We also want to call attention to the myriad of—going back to the 1860s, where the Signal Corporation and Defense Advancement Research and all of these took place through governmental entities. Well, in 1960, the IBM Air Force Sage computer system, and it goes on and on, the 1971, my person, this expert over here just gave me this information to let the public know that the government has played a role. In fact, they have been primary, principal, in starting the whole hardware and software when it comes to computer systems, and we must not forget that. Therefore, they must play a vital role in this.

And my question to you, Mr. Irving, is what is this administration doing to try to bring this divide, gap closer? Because when you say more connected, that doesn't say anything to me. It doesn't tell me anything. Because these percentages, are they children? Are they adults? Who are they that have gotten to a degree where they are more connected? Who are these people and what is the administration doing to help us with this divide?

Mr. IRVING. We are doing a number of things. The principal thing we are doing is working with Congress to promote competition to bring prices down, which it will help.

I think the second thing we are doing that is very, very important is this President and Vice President, again working with Congress, redefined universal service to include public institutions such as schools and libraries. This administration have been a strong and forceful advocate for the e-rate and will continue to be a strong and forceful advocate for the e-rate. President Clinton and Vice President Gore and others in the administration have focused on the need for community technology centers. We have increased by, I think, 600 percent funding for community technology centers that are storefronts in rural areas and low-income areas where people can go in and get training and access to computers.

Ms. MILLENDER-MCDONALD. So your program, this T-I-A-P, how do you pronounce it?

Mr. IRVING. TIIAP.

Ms. MILLENDER-MCDONALD. What type of grant money will there be for us to access to provide more computers for these community centers that you talk about? Because it is great to put up these centers, but you have got to put computers in there. What is your grant program like?

Mr. IRVING. TIIAP does a number of different things. We have about 400 grants out there right now, everywhere from rural Kentucky and Mississippi to a program in East Palo Alto. Right in the shadow of Silicon Valley there is a community called East Palo Alto that is disproportionately black, disproportionately Hispanic and a lot of single-family households. Those kids that are in there are making technological changes. They have contracts with Sega and AOL to do computer animation. They paid more in taxes their second and third year in existence than we gave in our first year of grants, because when you give kids access to technology and set them loose, they can do wonderful things.

I was just down in Kentucky where we have a program with the Center for Rural Development that is training people how to use technology. In small, little counties, they put little technology centers, counties that I had never heard of, but the people in those communities are embracing it and learning how to use skills.

I was in Chicago, and another one of our grant programs is in the south side of Chicago. We have grant programs at a learning center in Los Angeles, low-income, Hispanic, who are teaching young kids 7, 8, 9 years old computer literacy so they are not intimidated by these technologies.

But TIIAP is really a model program. What we do is demonstrate models and then hope the communities and States will fund on their own those types of models. I only have about $20 million a year, so I can't do every State.

Ms. MILLENDER-MCDONALD. Are you working with the States to try to bring that partnership about?

Mr. IRVING. Yes, and the most important thing about TIIAP, we disseminate what we learn. We put it up on line. We make sure that anybody we give a grant—the National Urban League has a grant that we gave both in Seattle and in Baltimore.

Ms. MILLENDER-MCDONALD. What about Los Angeles?

Mr. IRVING. There is one there, but we didn't fund that. But what they do is they give information about what is working and not working in those States.

Ms. MILLENDER-MCDONALD. I will say—and, Mr. Chairman, thank you so much for the extended time—this is a number one civil rights issue, and we must address it. Thank you so much.

Chairman PITTS. Thank you.

Mr. English.

Mr. ENGLISH. Thank you, Mr. Chairman.

Mr. Irving, in my earlier round of questions, I neglected you. That was unintentional, and actually, the line of questioning by my colleague, I would like to follow up on and maybe see if I can clarify some of your points.

In your report you stress community action centers as the key to finding a solution to addressing some of the problems of the digital divide within communities that are not as well wired. May I ask, in your testimony, why you don't stress the community action centers as much? Also, you don't give us as clear an idea of what the Federal role should be in promoting these access points. In your comments you pointed to the availability of some money for some prototypes for some pilot projects, but I don't have a sense of where the administration would like to go in establishing a firm Federal role for promoting the creation of these centers. Can you give us a sense, is this the administration's next programmatic initiative or ideally how much money should the Federal Government be putting in this direction?

Mr. IRVING. If I can, it is a multilayered question. The administration feels strongly that community access centers are a key. Community access centers can be broadly defined. Community access centers include schools and libraries and other public spaces.

Mr. ENGLISH. Do they include churches?

Mr. IRVING. They could include churches, although there is an establishment clause question that I don't have the capability of——

Mr. ENGLISH. So there is a concern on your part that any funding for churches to set up this sort of center might create an establishment problem?

Mr. IRVING. It might. I am a lawyer, but I am not competent to answer that question.

Mr. ENGLISH. I understand.

Mr. IRVING. I have to constantly look at those issues in my grant programs as to what types of grants I can give and what type grants I can't. Churches, community centers, barbershops, shopping malls, wherever there are community points where people will go. If a young student—I mean, I grew up in southeast Queens, New York. It is a working class neighborhood. There are a lot of kids that I went to high school with, half my class from freshman year to senior year dropped out. For me to think that those kids

are going to go back to my high school or go to a library to learn the computer is just fiction. Those kids have already said that these institutions have failed me. They are walking away. There are places in the community that they might go where they will feel comfortable, where they will be around peers, and we need to have those kind of centers in rural and in urban areas. That is why we use the generic term, community access centers.

The specific program that the administration, the President introduced last year in his budget and asked for increased funding this year are called community technology centers. Those are storefront shops where you not only have computers but you have trained people to train people how to use these technologies. We have asked for a 650 percent increase I think from fiscal year 1999 to fiscal year 2000. It was $10 million last year, $65 million this year.

Mr. ENGLISH. Which has produced how many centers?

Mr. IRVING. The grant round was just completed by the Department of Education last year for community technology centers.

Another thing that Secretary Cuomo has introduced are computers of learning and technology centers in housing projects where you can have people in the housing centers and in the housing projects teaching other. We have had some prototype projects through my TIIAP in housing projects. We have shown it can work. Now other agencies are taking what we have learned and others have learned and extending it.

I think you need programs like TIIAP that can show what works and doesn't work, and then you need the agencies in the Bureau of Indian Affairs, in HUD, in Department of Education, who can build upon what we are learning, but we also need private initiatives, and we need community initiatives.

Mr. ENGLISH. And how would what you are proposing actually promote that?

Mr. IRVING. I think that when you have these community technology centers it is incumbent and important for local businesses to be part of the solution and the design of these community technology centers and also to contribute.

I was in Billings, Montana, at the invitation of Senator Burns a few years ago, and the owner of the local Wendy's had made huge contributions to the library to make the library a community technology center because he learned he had computer illiterates working in his Wendy's and they needed computer skills just to be a burger maven or a burger employee, and he realized right then that he needed to make an investment.

This is a call for action across not just the Federal Government but also State and local governments and the private sector. We are not going to cure this with one silver bullet. We need a whole arsenal of tools to go in and fight this problem if we are really going to make every American ready for the 21st century.

Mr. ENGLISH. And I agree with that, and my concern is there is a tendency in Washington to identify a problem and then come up with a whole range of small niche programs aimed at it. What you are proposing here, I understand you would like to see more Federal funding for these community action centers broadly defined, but I am still trying to get my arms around the concept. My sense

is you are right to be flexible, but my concern is you have just listed a whole range of programs, and I wonder if we can move away from producing a lot of prototypes to trying to come up with a focused policy that will, with goals, set some clear parameters for how we can promote this access with a limited Federal role and in partnership with communities and State.

Mr. IRVING. I think all of us in the administration, the President and Secretary Daley down to me, would love to work with you on that, but there is one thing that I find as I have traveled across this country. A solution in rural Pennsylvania is going to be very different from a solution in the south side of Chicago, very different from Lynwood, California, very different from a native American reservation in Hopi or Navajo parts of Arizona. And so if I try to do a single shot or try to get my arms around this with one holistic solution, I am going to have some things fall through the gaps, and this technology moves so fast we need to be flexible and focused.

Mr. ENGLISH. I agree. But, Mr. Chairman, if I could continue briefly this line of questioning, Mr. Irving, my concern is that if you come up with 50 programs for doing this you may come up with 50 great photo opportunities in the process, and that will gratify some people in the political arena, but I am not sure you are coming up with a policy that is actually going to be measurable, that we are going to be able to fund because we know what we are getting.

You have told some great anecdotes, but I guess what I am looking for here is a flexible framework that allows for a Federal involvement in promoting these access points in rural areas and in urban areas, in very different settings, and not just create 40 different programs because we can think of 40 different kinds of communities we want to help. That is not a very coordinated policy. And as someone who thinks that there is a Federal role in promoting this access, I think that we need to have maybe a better defined policy here.

Mr. IRVING. I think we are in violent agreement. But I think one of the issues we have got to focus on is, if you have a disease, we are right at the diagnostic stages of the disease. And when you have a disease and you are trying to cure the disease, you may have to try a lot of different things. Sometimes you find that Mom's homemade soup is enough, but sometimes you need surgery.

And I don't think we are at the point where I think we need surgery, but I do think we need a diagnostic evaluation of what works best. And if I have a problem with my arm I need a different analysis than if I have a problem with my knee or in my spine. And I am not quite sure whether this is a spinal problem or a joint problem, but we know we have a problem. And what the cure is I think will determine on how persistent the problem is. Will it go away on its own? Will the marketplace take care of it?

And I don't think we are at the point yet where we can make this one prescription, but I would like to work with you, and I think all of us in the administration would like to work with you on how to find a prescription that is cost effective.

The flexible framework you mentioned is absolutely the right type of approach, I believe, and I believe the President would be-

lieve. Let us find a way that is focused, that is holistic, that is flexible, that helps to resolve these problems.

Mr. ENGLISH. I think you made a very fine presentation here, Mr. Irving; and we very much appreciate it.

I yield back.

Chairman PITTS. Thank you.

Ms. Tubbs Jones.

Ms. MILLENDER-MCDONALD. Mr. English, I agree with you. I don't want any prototype programs either.

Ms. TUBBS JONES. Thank you, Mr. Chairman.

To all of the witnesses that I have missed, I apologize for my delay, and I am confident that my colleagues have done a good job of addressing the issues in this area. I am going to be very brief.

The report, Falling Through the Net, was anybody surprised by the fact that it was likely to be minorities that would have less access to the Internet? Was anybody surprised waiting on this result?

Mr. IRVING. This is the third one I have done, so I had a sense of where we might be.

Mr. MILLER. I was pleasantly surprised, and it may not be a startling finding, by the fact that when we did get above the $75,000 income level, and I admit that is still a small percentage of the population, that a lot of the racial divisions did seem to disappear. I think that is a hopeful finding. That is not to say that everything is fine, but it does show that at some income level, people are willing to say, regardless of race or nationality, this Internet is important to me.

And one of the tricks of the trade that we haven't figured out as an Internet industry is how do we appeal to groups. As Larry said earlier, it is interesting that of the top 100 Internet sites, none of them is targeted to a minority community. Why hasn't anybody, in a sense, figured that out? Why isn't some great creative person figuring out the message?

Ms. TUBBS JONES. In campaigns, they use focus groups. Have you thought about that? I mean, ask the people who don't use it, it seems to me, might be the easy way.

Mr. MILLER. Exactly.

Ms. TUBBS JONES. Anybody ever thought about tax incentives for companies providing access to the Internet or computer opportunities?

Mr. IRVING. I am sure it has been thought of.

Ms. TUBBS JONES. But not implemented?

Mr. IRVING. You have a scenario in which the Internet is 6 years old, really, as a public space. You are seeing 50 percent per year increases across every income group now, although minority started later. People are giving away PCs now if you sign on to AOL or you sign on to various things. So those numbers are going to probably increase a little bit, but you are not going to get to equity anytime soon. We are not at equity with telephone penetration. African Americans are about one in every five——

Ms. TUBBS JONES. Maybe you misunderstood me. I didn't mean to the person who accesses the Internet. I am talking about to the people who control the Internet, the people who control computers. But the idea as we are moving from welfare to work of giving companies' tax incentives for employing welfare folk, why not give

them tax incentives for accessing computers and training people to use the Internet and this technology? I am just throwing it out as a possible suggestion.

Mr. MILLER. A bill has been introduced in the House by Congressman Moran and in the Senate by Senator Conrad which would provide tax incentives for companies to do IT training. And, obviously, we believe that most of the people who take advantage of that would be people who are less economically advantaged.

Ms. TUBBS JONES. But what I am saying is that those of you who are in the business of creating the Internet and dealing with computers and so forth may have to go on the offensive, and we reward you for going on the offensive if you do more than sign somebody up and say I signed them up and they failed the course and I am done, if you do something a little more than that, and that is something that quickly comes to mind to me.

I would like to thank you very much.

Mr. Chairman, I yield the balance of my time.

Chairman PITTS. Thank you.

Mr. Davis, do you have any questions?

Mr. DAVIS. Yes. Thank you very much, Mr. Chairman.

And I really am pleased because I just wanted to follow the trend of thought that I thought I had picked up from Mr. English. And while I am in agreement with all of the community access centers, all of the programs, all of the opportunities, as I listened I was thinking that I have seen about as many storefront programs as I want to see. I have been in about as many basements as I really want to go in. With certain kinds of programs, that they are good as the only thing that you can get.

I mean, if you get down to the point where this is all that you can get, then put it in the storefront. If this is all that you can get, then put it in the church basement. But if there is a coherent policy in terms of actually putting into public education, into the school systems where there is an environment, where there is an atmosphere, where young people can really learn to make the greatest use of this technology and these instruments, then I really think that goes to another level.

And so, while I am not denigrating storefronts and small programs and initiatives, as I have been dealing with those all of my adult life—I mean, ever since I have lived in inner city America, which is all of my adult life, that is what I have seen. But I have never seen the kind of results that could really come if we were to anchor down and put into public education the kind of resources, the kind of equity so that some school systems are not being funded at a level three times as high as others, where all of the children really get the opportunity, then I think we can reduce the disparity.

I mean, anything less than that, I think the same disparities that we experience we will continue to experience because we are putting Band-Aids on cancer, and it just keeps breaking out, keeps breaking out.

But I really appreciate the testimony and the responses that all of you have given, and I find it intriguing, but I really think we need to go to another level.

Mr. IRVING. May I briefly respond?

Congressman, I couldn't agree more about the importance of focusing this on education, but I also hope when Mr. Fulton and others testify in the next panel you will hear about some of the success stories. And, interestingly, the Baltimore grant we gave is in a church. So there is some way churches can be involved.

Some of the success stories in community centers, there are literally hundreds of people in Baltimore working in high-tech today because the Urban League and the Federal Government made investment and gave people computer training. There are literally hundreds of young people in East Palo Alto, hundreds of young people in Newark, New Jersey—Keith and I were just down in the west side of Chicago looking at a community technology center that the Urban League has there, and young people there are going to have opportunities because we made those investments.

And, again, as somebody who was formerly young, I know that at a certain age, in certain communities, there are kids who are not going to go to school and are not going to go to libraries for the training, and we have to reach them as well if they are not going to be lost to this economy. And that is why, while I don't disagree that we have to focus on schools, I think if we only focus on schools we are going to have a generation of people who aren't equipped that we could otherwise reach.

Mr. DAVIS. And I didn't want to, again, denigrate in any way. And I agree that if anything you take, if that is all that you can get, I agree with that. I have just seen all that you can get so much, knowing that if we do 10, there are 10,000 that we needed to do. If we do 100, there were 50,000 that we needed to do, and I just want to go after the 50,000. It is kind of my like daddy used to tell us when we were farmers and one of the crops would come. He would say, pray for a good harvest, but keep on hoeing. And so let us keep doing what we are doing while we really go for the big one.

Put it in education where everybody has a shot at it.

Mr. MILLER. Congressman, I couldn't hope to match your eloquence about the importance of education. Every business person believes in it. I heard a story yesterday which I found very disconcerting. One of my large member companies is trying to give away to some school districts brand new PCs. Because of various bureaucratic rules some of these public school systems cannot accept them. So I agree money is part of the solution, but sometimes it is overcoming old fashioned thinking. So anything we can do to work with local school districts and state governments which fund so much of education to get them past some of this old thinking would also be helpful. The thought that a school district would turn away free PC's in this day and age is pretty appalling.

Ms. MILLENDER-MCDONALD. Mr. Miller, see me after the hearing.

Ms. TUBBS JONES. Mr. Chairman, could I ask one more thing, please. There is in fact a significant amount of legislation that prohibits public schools from accepting PC's and it may be the direction of going to the legislature in that particular jurisdiction to try to get some change. Because I have heard of it and not only where you are but a number of other places.

Lastly I want to add in I know you are talking about this group of young people who are not in school. But there are also a signifi-

cant group of people somewhere between 35 and 65 who won't even—I mean, have you ever stood behind one of them at an ATM machine? And the reality of it is there is an issue for retraining that we need to address as well as the young people, but retraining where people who probably have another 30 years in the work force, who have never touched a computer. We need to get there some way too.

Thanks, Mr. Chairman.

Chairman PITTS. Ms. Lewis.

Ms. LEWIS. I am so glad that you raised that issue, Ms. Tubbs Jones, because one of the concerns that APT has is that schools and libraries and community access centers are a wonderful first step but the technology needs to be brought to the home. The infrastructure has to be brought from the neighborhoods into everybody's home so that people can feel comfortable to play around with technology and not feel intimidated. And it is important to support all of these efforts. But it takes the entire community working together to empower the community through the use of technology.

Ms. TUBBS JONES. Thank you.

Chairman PITTS. I wish we could go on. We have gone over two hours with the first panel. We have heard some excellent and timely testimony. But at this time I would like to dismiss and thank the first panel and call the second panel to the witness table.

Ms. MILLENDER-MCDONALD. It is a nation state. Thank you very much.

Chairman PITTS. All right. The Chair would like to welcome the second panel of Mr. Fulton, Mr. Robinson, Mr. Krumholtz, and Mr. Coleman. Welcome. And I would like to ask Mr. Fulton, who is the Director, Technology Programs and Policy for the National Urban League, to begin.

STATEMENT OF B. KEITH FULTON, DIRECTOR, TECHNOLOGY PROGRAMS AND POLICY, NATIONAL URBAN LEAGUE

Mr. FULTON. Certainly. Thank you, Mr. Chairman and members of the Subcommittee. As the others have already done, we want to thank you for this opportunity to testify about the Urban League's efforts to partner with industry and government to bridge the Nation's digital divide. Today I would like to share insights from our more than 30 years of experience in bringing technology based programs to low income communities and working with industry and inner city communities to develop a skilled information technology work force.

First, I will briefly characterize the National Urban League and our technology based programs. The League was founded in 1910. Our mission is simply to assist African Americans and the urban poor in the achievement of social and economic equality. In short, that means we help people to help themselves. We achieve our mission through direct service programs, public education, collaboration with industry, government, other community based organizations and bridge building between different racial and ethnic groups.

We have 115 Urban League affiliates throughout the United States operating in 35 states and the District of Columbia. We

have 3,000 professionals and approximately 30,000 volunteers serving a client base of approximately 2 million people. We have a rich history in technology based programs. Our first program opened in 1968 in Los Angeles, at the IBM training center. At that time there was no Internet and no PC's, so the programs focused on COBOL programming, mainframe upkeep and data entry, again on mainframes as they were the industry standard. That program grew over the years and by the early 90's we had approximately 32 programs operating, and the training had shifted to PC's, which are now the dominant computing tool in industry.

More recently companies like Bell Atlantic, AT&T, EDS, Microsoft, Ameritech as well as volunteers in the small business community have worked with us to continue our work to train entrants for the information technology work force.

Our current vision is to build 115 state of the art technology education and access centers across our footprint of local Urban League affiliates. Also known as digital campuses, we expect each center to train approximately 600 entry level workers per year. Finally, we produce a number of books and other writings. Some of you may recall that we sent you a copy of the proceedings from your Urban Technology Summit and a copy of the book we developed with the Benton Foundation called Losing Ground Bit by Bit. The information went to your offices a few weeks ago. We do these writings and hold other forums as part of our public service to help policy makers and practitioners to make appropriate program and policy connections.

You have heard Mr. Irving and others talk about the specifics of the digital divide. I want to hone in on some of the implications that arise when there is uneven distribution of information technology resources. Several areas are impacted. I will focus on jobs, education and opportunity. With respect to jobs, advances in information and communications technologies are driving our information economy. We have heard this. Some experts estimate that information technology jobs pay as much as 78 percent more than jobs in other industries.

However, less than 10 percent of the information technology work force is made up of women and minorities. Interestingly, while two-thirds of all core IT workers have a Bachelor's Degree, 26 percent have less than four years of college and 6 percent have only a high school diploma or less.

If the digital divide is not bridged the underrepresentation of minorities in the IT work force will proliferate and contribute to the further erosion of inner cities; e.g., the outflow of work to suburbs, closing bank branches, and falling home ownership.

With respect to education, while programs like the e-rate have been critically important for getting Internet access into schools and libraries in the aggregate, recent studies show that only 16 percent of schools in low income areas are actually connected to the Internet. In contrast, 80 percent of schools in more affluent areas have Internet connections. Further, most libraries do not have the available staff, space or instructor know-how to teach marketable information technology skills. These factors will combine to jeopardize the achievement and competitiveness of children in low in-

come communities, leaving them and their parents relegated to a low wage and low skill economy.

Finally, with respect to opportunity, infrastructure disinvestments characterize low income communities. Accordingly, businesses in these communities must pay a premium for services and they are not able to compete with entrepreneurs in saturated infrastructure areas in the central business district and emerging fringe development areas. Resulting savings based on location away from low income areas can run as high as 30 percent. These inequities will result in fewer minority owned IT ventures and fewer small business generated opportunities in these communities.

The National Urban League plans to work with industry and government to build 115 state of the art digital campus centers by the year 2006. We believe that this substantial investment in low income communities is necessary as part of the emerging technical training infrastructure of America. At full operation we expect our technology training centers to produce 68,400 new entry level IT workers per year.

We are currently at 65 centers across the country. National efforts like the Department of Commerce's TIIAP program have done a great deal to leverage government and private sector resources for local training projects. The National Urban League was the beneficiary of a 1997 TIIAP grant. That grant combined with a generous investment from the Bell Atlantic Foundation helped the League to pilot our technology and education access center model in four U.S. Cities. These centers served over 7,000 adults and youth in their first 14 months of operation.

Most recently we received grants from the Ameritech Foundation and AT&T to develop eight additional digital campus technology education and access centers. Each of these centers will have 30 to 42 PCs, a network, Internet access, on-site training, 24-hour toll free call support and access to 50 Internet based courses for training and industry standard applications and career development. We have tied our work in this area squarely to work force development and academic achievement. The computer centers will be safe places for children and caring adults to use computers for work force development and academic enrichment. In each city that we bring these technology projects, our local affiliates have created collaborations with industry, government, academic institutions and other community based organizations. These local partnerships serve to expand the reach of a given project and the probability of their long term success and survival. Government resources provide incentives for these community investments.

For example, our Los Angeles technology center in 1997 they trained 1,400 workers. Those workers earned $31 million and paid $2.1 million in taxes. We anticipate similar returns on investment in the other cities where we begin these projects.

In summary, public-private partnerships to build community technology centers can make a significant impact on the digital divide. Practitioners will need reliable pools of resources from government and industry. Programs will also need resources for evaluation and assistance in disseminating findings. Last, organizations with IT know-how should be encouraged to use their convening power and influence to compel other stakeholders to invest in de-

veloping an inclusive IT work force and for preparing our children to succeed in the 21st century.

Thank you.

[Mr. Fulton's statement may be found in the appendix.]

Mr. DEMINT [presiding]. Thank you, Mr. Fulton. Mr. Robinson.

STATEMENT OF TIM ROBINSON, LEGISLATIVE ATTORNEY, AMERITECH CORP.

Mr. ROBINSON. Good afternoon. Mr. Chairman and esteemed members of this Subcommittee, I want to thank you for inviting me here today to talk about the digital divide which is not getting better, but is getting worse. I would like to tell you what Ameritech has done to combat that divide and what Congress can do to help small business and minorities in particular gain equal footing with larger businesses and nonminorities.

At Ameritech we are actually trying in conjunction with our community based organizations to satisfy the exploding demand for information resources and services. Just two weeks ago we announced that we would provide financial assistance in the form of a $350,000 grant to help in establishing five community technology centers. These centers, which are to be known as Ameritech digital campuses, will be located in central cities——

Mr. DEMINT. Sorry to interrupt but I need to ask you, and everyone on this second panel, to summarize to some degree. We will include your full statements in the record, but for now, if you could just touch upon your major points that would be helpful. I don't want to cut you short, and if you need to read through the whole thing, certainly feel free to do so, but I want Members to be able to hear from the entire panel. So thank you.

Mr. ROBINSON. Thank you. I will be mindful of that. In inner cities, where a disproportionate number of black and Hispanic Americans live, recent studies show that retail buying power amounts to $100 billion a year. And although blacks comprise nearly 13 percent and Hispanics comprise 10 percent of the population they respectively own less than 4 percent and 6 percent of all businesses. These numbers demonstrate there is considerable room for growth in the formation of minority businesses. Ameritech believes it can tap into that growth while also providing some of the tools and information resources to spark that growth.

More can be done to turn the digital divide into a digital dawn of opportunities for underserved groups. And we can help in creating some of those solutions. That is why Ameritech petitioned the Federal Communications Commission for authority to provide data services to its customers across arbitrarily defined geographic boundaries known as LATAs. According to the FCC's rules, Ameritech and other RBOCs cannot transport voice or data services from a user in one LATA to a user in another LATA. This prohibition which the FCC has interpreted as applying equally to voice and data, is excessively broad in scope and has hindered our ability to offer appealing and useful data service packages to our customers.

For example, we cannot carry data from a low income or minority customer in Chicago who might want to register electronically for an online course 150 miles away at the University of Illinois in

Champaign-Urbana. Nor can we carry data across our networks for a retail goods firm that needs to download inventory data from its suburban warehouse to its urban retail outlets so long as those two facilities are located in different LATAs. The perverse result is that a capable communications company like Ameritech is needlessly shut out of the burgeoning data market denying customers another viable choice among service providers.

Congressmen Billy Tauzin and John Dingell have introduced H.R. 2420 and Congressmen Bob Goodlatte and Rick Boucher have introduced others—H.R. 1685 and H.R. 1686—that would wisely eliminate this restrictive prohibition, which only serves to impede growth and availability of high speed Internet access. We would ask that you consider supporting these bills because they are good for our country's economic health, our businesses, and our employees.

Thank you for the opportunity to testify before this Subcommittee, and I look forward to addressing any questions you might have.

[Mr. Robinson's statement may be found in the appendix.]

Mr. DEMINT. Thank you, Mr. Robinson.

And other members, the chairman will return in a moment and I will leave to vote and we will continue the testimony. So if you need to leave to vote, please return for the questioning. So again thank you, Mr. Robinson.

Mr. Krumholtz.

STATEMENT OF JACK KRUMHOLTZ, DIRECTOR, FEDERAL GOVERNMENT AFFAIRS, MICROSOFT CORP.

Mr. KRUMHOLTZ. Thank you, Mr. Chairman, Congresswoman Millender-McDonald and members of the Subcommittee. I would like to commend the Subcommittee and the chairman for holding this hearing on what we too see as a critical issue. I would like to take what time I have this afternoon to comment briefly on Microsoft's approach in this issue and discuss some of the lessons we have learned from our efforts. Our approach is to start small with pilot projects, form partnerships with interested parties on both the local and national level, evaluate what works and what doesn't and expend our efforts and programs based on what we have learned.

As a Nation we are reaching a new and exciting stage in the technology revolution where computers are easier to use and less expensive to manufacture and own. New devices providing many of the capabilities we now expect from a personal computer, including connectivity to the wealth of information and services on the Internet, are being introduced at a wide range of prices, yet despite the advances made in these lower cost devices and the increasing affordability of information technology generally, we continue to face the challenge of ensuring that all Americans have access to the Internet and the opportunities it affords.

Microsoft's vision of a computer in every home would be incomplete without the vision of access to technology for all Americans in the Nation. As we pursued this vision we have learned that there are no simple solutions and that a successful effort to close the digital divide will require partnerships between the public and

private sectors, between businesses, government and nonprofit organizations. I would like to describe briefly how we have pursued this approach with two specific initiatives.

In 1996 we launched a pilot program called Libraries Online in the public libraries across the country. Partnering with the American Library Association and the local library officials, the objective of Libraries Online was to provide access to information technology and the resources of the Internet to some of the most disadvantaged and underserved communities in the U.S. Because libraries are a vital informational resource for communities we believed that this initiative would reach most members of the community from school age children to senior citizens.

We learned a great deal from this initial pilot program that year. Perhaps most importantly we learned that training librarians to use and maintain the technology is as important as providing the funding and donating the technology itself. With that lesson in mind we began a one-week training program for participating librarians and provided ongoing technical support. When it became apparent that the model used in Libraries Online was a success, the Gates Learning Foundation established by our Chairman Bill Gates and his wife Melinda expanded the program to library systems across the Nation. The ultimate goal is to wire every public library in the country. Microsoft now partners with the foundation by providing software to the participating libraries.

Briefly, the second example is Microsoft's working connections program. Working connections is a 5-year $9 million program administered to the American Association of Community Colleges. We believe the community colleges play a critical role in providing education and work force training to disadvantaged and underserved communities. Visiting several of these institutions, we concluded that community colleges have both the capacity and the interest to prepare their students to enter the information technology work force.

Mr. DEMINT. Mr. Krumholtz, I apologize but I have to go vote. I thought the Chairman would be back. I will just adjourn the Committee momentarily. I am sure he is on his way. I apologize to all of you for jumping up and down. Let's take a brief recess. I am sure Chairman Pitts will be right back.

[Brief recess.]

Chairman PITTS. All right. We will reconvene the hearing at this time and ask Mr. Krumholtz if he will continue where he left off.

Mr. KRUMHOLTZ. Thank you, Mr. Chairman. Just before the recess, I was just mentioning briefly a program we have with community colleges called Working Connections, administered by the American Association of Community Colleges. We established Working Connections to encourage the development of innovative information technology programs. Its goal is to train workers to succeed in IT careers and to open the IT world up to minorities and women where jobs and opportunities are plentiful when the work force supply is not. Grants to community colleges from Microsoft fund an IT curriculum, faculty training and outreach to local community groups and industries.

As we move forward with these and other efforts, we continue to learn more about what works and where to best invest our re-

sources. We have learned that training people to use technology is just as important as providing them access. We have also learned that closing the digital divide will take a coordinated effort; no single party or entity can do it all. The best programs must include partnerships between the public sector, private sector, and nonprofit entities.

We look forward to continuing our collaboration with educators, legislators and members of the business community to bridge this gap and bring technology to everyone, everywhere. Thank you again for the opportunity to testify. I would be happy to respond to any questions.

[Mr. Krumholtz' statement may be found in the appendix.]

Chairman PITTS. Thank you. Mr. Coleman.

STATEMENT OF THOMAS COLEMAN, PRESIDENT AND CEO, TECHNICAL CAREERS INSTITUTE, INC.

Mr. COLEMAN. Thank you, Mr. Chairman, members of the Subcommittee. My name is Tom Coleman. I am president of the Technical Career Institute, a two-year degree granting proprietary school located in Manhattan. It is a pleasure to be here today to discuss the digital divide and to share our experiences in providing access to technology to the Nation's most economically disadvantaged.

At TCI we serve more than 3,500 students in programs designed to prepare a well-trained work force in various fields of technology. 75 percent of our students are African American and Hispanic; 55 percent of our students come from families with an average annual income of less than $12,000. Some are new Americans requiring instruction in English as a second language. Many are products of the New York City Public School System. And suffice it to say that remedial training is a critical component in preparing our students for today's highly technical work place.

Despite all these challenges we at TCI were recently identified by Community College Week as ranking first nationally in the production of two-year engineering related associate degrees. We are very proud of the accomplishments of our students, particularly in view of the extraordinary challenges many of them must overcome to receive their degrees.

At TCI we have been educating the economically and socially disadvantaged inner city student for a long time and we continue to use new and varied approaches to raise the academic, technical, and employability skills of our students.

For example, in 1988 we initiated a program to introduce computer technology training to community and faith-based organizations in the Flatbush section of Brooklyn. Working with the clergy and community, we invited women who were returning to the work place after raising a family, as well as those attempting to move there from welfare to work, to come to our campus for free computer training. In the 11 years the program has been in effect, 1,300 women have participated. Some have left the program for good jobs that were previously unavailable to them. Approximately 20 percent have enrolled at TCI and many have enrolled in other post secondary institutions.

Our personalized student success program assists students in improving their basic academic skills and essential work place competencies. New students have the opportunity to participate in a boot camp experience prior to attending classes at the college. This intensive program emphasizes the math skills required for academic success.

While this boot camp approach has increased the chances for success of many of our students, we quickly came to realize it takes more than a couple of weeks to overcome many of our students' lifelong underexposure to technology. Our technology-based after school initiative introduces computer technology to 11th and 12th graders enrolled in New York City Public Schools.

We have also learned that community service is a strong self-esteem booster which assists our students in developing the tools for success in the work place. In a program our students have dubbed Dare to Dream, old computers are contributed by corporate donors and are refurbished by our students. We have received and donated more than 300 computers to organizations such as the New York Public Schools, community facilities for the handicapped, AIDS residential facilities, community based organizations and individuals with disabilities.

Another recent initiative which has provided me with a great amount of personal satisfaction has been our Women in Technology Program. The program assists women entering into careers in technology by providing them with mentoring to prepare them to succeed in nontraditional occupations. Since the inception of the program, the percentage of women enrolled in our technology programs has increased by almost 20 percent.

In conclusion, I am here today to tell you that the digital divide is real, and that it is getting wider every day. But for the programs I have spoken to you about this afternoon, many of TCI's students and graduates would have fallen through the divide already. If I were to offer one observation based on my experiences of the past few years, it would be this: If we are to succeed in closing the technology gap for future generations, we must be willing to blur the distinctions among business, academia, and community.

Institutions such as TCI cannot afford to isolate our students and faculty in ivory towers of academic thought. We must reach out to the communities where our students and prospective students live, to lay a solid groundwork in math and technology at the high school level and before. We must reach out to our local businesses, where our graduates will work, to be constantly sure that our skills we are providing are the skills prospective employers need and want. And we must reach into the hearts and minds of the students we serve to give them the skills, the confidence, and the opportunity to succeed in our Nation's increasing digital economy.

I want to thank the chairman and members of the Subcommittee for your interest in this important issue and for the opportunity to appear today before you. I would be happy to answer any questions.

[Mr. Coleman's statement may be found in the appendix.]

Chairman PITTS. Thank you very much. Mr. Coleman, let's start with you. You mentioned that 55 percent of TCI students come from families with an average annual income of less than $12,000.

What is the average salary that TCI graduates can expect when they enter the technical career with their associates degree?

Mr. COLEMAN. It varies on the program, whether it is an office technology program or whether it is a more highly skilled program. But if we talk to the highly skilled programs typically we are seeing salaries that begin in the late 20's to the mid-30's in that area and we have seen some as high as 45 but that is a rarity.

Chairman PITTS. Do most of the TCI students receiving two-year degrees go immediately into the work force or do some pursue more advanced degrees?

Mr. COLEMAN. Most of them go directly into the work force. Some later on may attempt to go for the four-year program.

Chairman PITTS. Do many of your graduates have entrepreneurial aspirations to your knowledge? Do some of them own small businesses or do most grads take jobs in the private sector and are they going to large telecommunication companies or are they apt to work in smaller enterprises within their communities?

Mr. COLEMAN. About 60 percent of our students end up with small employers; that is, the employers of less than 1 or 200 employees. As far as the entrepreneurial aspect of it goes, I only have some anecdotal evidence and just last Thursday I met a student who I didn't have time to spend with, spend any time with him, but he told me that he has just developed his own web page and he has got a little business selling some kind of health products. But I hope to talk to him more about what he is doing. But it is that kind of thing that is really great.

Chairman PITTS. You suggest integrated training initiatives between schools and businesses. Is TCI currently taking steps to create such training initiatives?

Mr. COLEMAN. Yes, right now we are working within one county a community of churches to donate a number of computers to them so they can establish a center there, and we would like to work with others.

Chairman PITTS. You mentioned after school programs for high school students. Do you track the scholastic improvement of those participants; for instance, what percentage of those participants go into developing careers in technology?

Mr. COLEMAN. I can't answer that because we just started this program in late June where we offer two programs. One is introduction to computers and the other is visual basic. When the fall comes along we will continue those as an after school program. We will add to that remedial math, which is really needed by the New York City school students but we do plan to track them. I would be happy at a later date to brief you.

Chairman PITTS. Can you discuss in more detail TCI's program for women preparing to re-enter the workforce. What were some of the difficulties you encountered, what were some of the successes?

Mr. COLEMAN. Day care is a problem for the women. It is a huge problem for them. And the successes that we have had, we have had women who have just worked in the $5 an hour jobs for a great part of their life, they have been on public assistance, and now they get some education and they find themselves making $30,000 and they feel so much different and they are able to support themselves and their families.

Chairman PITTS. I think also you mentioned service learning projects where students assist those learning English or rebuilding computers. How does the volunteering component enhance the student's experience? Have you found that a very positive experience?

Mr. COLEMAN. This is our Dare to Dream project, which was originally started as a project to help students improve their English. Some of—it has grown over the years. It has become a number of things. One of the things the students do is they go into the schools and they help tutor in the community. This is good for the students. It has built their self-esteem. It also improves their skills. It has been a very positive experience. And those students as a group do better than students who are not involved in community service.

Chairman PITTS. Very good. Thank you.

Mr. Krumholtz, in light of the results of the NTIA study what do you see as the future of the Information Age? Will the divide continue to get wider? And what can we do to make sure it does not expand?

Mr. KRUMHOLTZ. Well, I am pretty optimistic about the future of the Information Age. In fact I think it is telling that the name of the Subcommittee is the Empowerment Subcommittee because I think one of the great things about the benefits of the Internet and information technology is how empowering it is to so many individuals, businesses of all sizes. So, I am very bullish on it.

Are there things that need to be done to make sure we address the digital divide? Absolutely. As I pointed out in my remarks, I think it is important that there be, you know, that we look for and encourage partnerships both between the private and public sector working with nonprofits, like the Urban League for instance, to really address some of these issues. As I think was suggested earlier by Mr. Irving, there is no silver bullet to address this challenge. And it really is going to take some work at the local level and working with people that have the expertise as we did in our libraries project, working with the American Libraries Association.

At Microsoft we went into this knowing very little about libraries, so we brought in experts who could tell us what were the hurdles going to be in working with libraries—where were there areas where we really could make a difference. Unfortunately, there is not a single answer but I think that there is a lot of opportunity to help address the problem.

Chairman PITTS. Now, regarding your partnerships and trying to reach underserved groups, how does Microsoft decide where to invest its time, its money, its resources?

Mr. KRUMHOLTZ. We would like to think that we are very thoughtful and strategic in doing that. We spend a lot of time looking at different opportunities. As you might imagine, a company or Microsoft or Ameritech or many other large corporations, there is no lack of opportunities to try to engage and participate in efforts of this nature. So we really spend a lot of time.

I think probably the thing that we try to do the most is we try to start small. In all of our major national efforts and initiatives we have started them as pilot projects. And we have really gone back and studied what worked, what didn't work. Again in the libraries initiative we actually had an independent advisory board of

librarians and other experts in that community to go out and look at the individual projects in those 9 pilot sites and report back and give us their recommendations on what was working well and what may be needed to be redirected.

Chairman PITTS. Did you come up with the most successful method for providing instruction with libraries?

Mr. KRUMHOLTZ. Well, I think training is absolutely key. And we learned there—perhaps it is self-evident, but we learned maybe the hard way that you can't go in and just expect that the individuals on the ground, the librarians, are going to necessarily have the skills they need to use the technology, maintain the technology. Because maintaining a computer, as we all know—we all have our computers crash unfortunately from time to time—takes a certain amount of training and expertise, and I think that realizing that and working to address that was one of the key findings.

Chairman PITTS. You mentioned that Microsoft participates in a program called Working Connections in conjunction with community colleges. In your opinion, are two-year degrees from community colleges going to be instrumental in preparing workers for the IT field?

Mr. KRUMHOLTZ. We think that the community colleges play an absolutely critical role in preparing our work force, not only retraining workers but also preparing younger kids that are coming out of high school to enter the IT work force. And a number of witnesses today have discussed the real challenge that IT companies have—and not just IT companies, really companies across the board who have IT needs and requirements in filling those jobs. I think listening to Mr. Coleman's testimony about some of the people that they had trained, you know not all of those people are necessarily going to end up being a programmer or a developer of tools that others may use to develop software programs, but there is a wealth of opportunity for those individuals to enter all levels of the IT work force.

Chairman PITTS. Thank you. Mr. Robinson, Ameritech has forged strong partnerships with community groups like National Urban League. What incentives do private sector firms have to invest in underserved areas?

Mr. ROBINSON. I think firms like Ameritech have a tremendous number of incentives to invest in areas that have been historically underserved. If we look—if we project out 20 years from now, 60 percent of the jobs in this work force will require some level of IT literacy, information technology literacy. Today only 20 percent of the work force possesses those skills. So it is very important that we invest in our communities and invest in those people that we serve. Because we will be looking to them in the future not only as consumers of our products and services but also as employable talent.

Chairman PITTS. In light of the results of your digital divide study, what are some solutions in addition to community technology centers that will help bridge the gap?

Mr. ROBINSON. One of the benefits of going second is that you can hear the first panel. The answers given by Maureen Lewis and I believe Mr. Miller on the first panel with regard to overregulation were right on target. Too much regulation can retard growth by

stripping away incentives that are already in place to bring more information and data services more quickly to small business and low income households.

Businesses do need and require some incentives to move into areas where they might not be able to otherwise recoup their investment. And to that point I commend Congresswoman Tubbs Jones for thinking "out of the box." I think we need to have some creative solutions, some incentives in place that would encourage firms like ourselves to go in and deploy broadband access more quickly than we might otherwise.

Chairman PITTS. Thank you. Mr. Fulton, the Urban League certainly plans for a large network of digital campuses nationwide. What criteria do you use when deciding which cities to establish community technology centers in? And do you typically rent space; do you use existing community facilities, do you build new structures? If would you explain that.

Mr. FULTON. The type of space we use varies. In the 114 communities across the country where we have Urban League affiliates, half of them own their facilities, their building, and other resources, and that facility might choose to use existing space. In other cases we will rent out an office if the owned space isn't suitable. Some of the criteria we use for selecting cities are a demonstrated capability to deliver on the expected results of the centers we want to create. Do they have resources for staff? Do they have community support? Do they have interest from the local government? Those kind of things we find come together to make for the most successful outcomes.

Chairman PITTS. Now, you estimated the cost of a community technology center with 20 computers I think at $70,000 to $100,000, including staff, office space, other overhead.

Mr. FULTON. That doesn't include the staff and office space. The staff and office space and other factors could ultimately make that number increase.

Chairman PITTS. With the emphasis on volunteerism here, could the cost be reduced by using industry volunteers to supplement permanent staff?

Mr. FULTON. Volunteers help. We have aligned ourselves with several affinity groups in the information technology industry to help us with that. The issue becomes accountability. We have aligned our technology centers with work force development and achievement. At the end of the day we want to be able to demonstrate that we have trained a certain number of workers who are capable and ready to enter the IT work force. When you have volunteers doing the training, in a structured program that can become difficult as a volunteer may give a couple of hours but they may not be able to give a full day or a series of days over a 10-week period. So we think that hired professionals are an important element to the most successful training programs.

Chairman PITTS. You mentioned evaluation is an important aspect to the process of running a successful program. Does the Urban League keep track of how many community members are using the centers? If so, have you found that communities make an immediate use of the digital campuses or does it take some time for them to embrace the opportunities offered by the centers?

Mr. FULTON. We do track. Initially a lot of the tracking happened locally. When I came into place in 1996 the objective has been to standardize some of that tracking. So moving forward, we will track in a national way the activity that goes on. What we find is that the community tends to embrace the center. They want to come in and find out what kind of programs are available for the adults and children. So what we do is we have structured programs and unstructured programs. The structured programs focus on training for entry level information technology work force jobs. The nonstructured programs focus on academic enrichment and allow adults and young people to enter into an environment where there are resources and there is a professional, but where they can explore the technology and conduct job searches as well as other things and on a drop-in basis.

Chairman PITTS. Thank you. Miss Millender-McDonald.

Ms. MILLENDER-MCDONALD. Thank you, Mr. Chairman. And I would like to thank this panel and apologize for having to step away but in the people's House you have to do the people's business and that's oftimes having to leave committees. I commend you because it seems like the common thread with this panel, especially of corporate heads, is that of partnership. And it is clearly impossible to touch any of these disconnects without a partnership, partnership between Federal, state local and private firms.

I just wanted to make clear though that the government does play a role. I am also interested in, as my colleague on the other side said, that we must not have a lot of fractionalizing with programs, programs that are just feel good programs, but programs that would really go to the heart of the issue. And if it does mean any types of tax incentives, we would be happy to look at that to ensure that we continue to expand these partnerships. I am not adverse to tax incentives. I did them in the state legislature and I certainly will not have a problem with doing them here. But what we want to do is expand so that you can reach those who have not had the opportunity of getting online with these various digital campus centers. I am very impressed with that Mr. Fulton and Mr. Krumholtz. Is that the way——

Mr. KRUMHOLTZ. Krumholtz.

Ms. MILLENDER-MCDONALD. Krumholtz. Your community college—I have often said that the community colleges have not been tapped in the way that they should and we must continue to tap them on a larger basis promoting the types of community working connections that you have with your program.

Mr. Robinson, I am impressed and also encouraged by what Ameritech has done with $350,000, opening up at least 5 centers. We would like to work with you, for you, to expand those to more and see what we can do to help you expand to more centers.

Mr. Fulton, when you do volunteers, I am wondering if we can pull from the pool of the companies that do partnership with you to get some of their people to come and volunteer because they have a stake in this as well, as well as your former grads to return back to utilize their expertise. One is a Jack Priester. I am told that he is doing quite well in this area in Virginia, having finished the LA Urban League and now has become I think a Washington's Businessman of the Year. That validates what can be done when

we do do partnerships with the corporate sector, with the public sector and with community based organizations such as the Urban League. So I am encouraged today.

I will go away from here having said that we have formed a type of partnership now with all of you because I will be calling on you to form partnerships with me. You are not going to go too far before I call you. Because I want you to now help me to help those young folks and even the ones who are returning, those old folks like I am, to bridge that gap, that we must do to make sure that this digital divide becomes more narrow.

Thank you, Mr. Chairman, again for this outstanding hearing.

Chairman PITTS. Thank you. I apologize for going over time. You have been very patient.

The hearing has been very informative, excellent testimony on a very important issue, and the Committee thanks you very much for coming today. So at this time, the hearing is adjourned.

We will keep the record open for 5 legislative days should anyone have any additional information to include.

[Whereupon, at 5:07 p.m., the Subcommittee was adjourned.]

SUBCOMMITTEE ON EMPOWERMENT
Hearing on: "The Digital Divide: Bridging the Technology Gap"
Opening Statement of Chairman Joseph R. Pitts
July 27, 1999

Good afternoon ladies and gentlemen and welcome. Thank you for joining me and the Members of the Subcommittee on Empowerment to discuss the "DIGITAL DIVIDE." The term digital divide refers to the differences between groups to whom computer and Internet technology is available and groups lacking such access.

A recently released study by the Commerce Department's National Telecommunication and Information Administration, finds evidence of a widening digital divide. Data from the study shows demographic differences between those groups with access to telephones, personal computers, and the Internet, and those without such access. On a positive note, the results of the study demonstrate that Americans *as a whole* are advancing with respect to Internet connectivity. In fact, in 1998 over 40% of U.S. households had personal computers and of those, approximately 26% had Internet access. While this finding is encouraging, a more problematic issue remains-- some socioeconomic groups consistently fall below the national average with respect to access to the tools of the

Information Age. Indeed, the study reports that minority, low-income, rural, and single-parent households are less likely to have access to electronic resources.

As we move from a paper-based society to a electronic one, personal computers and Internet access are becoming increasingly valuable. Interactive computer networks have the potential to enhance many aspects of our lives including our education and career prospects. Indeed, the rapid infusion of electronic resources into our society has rendered computers and the Internet indispensable tools in some homes, offices, and schools.

As opportunities for jobs in high tech industries grow, the ensuing need for information technology education becomes more apparent. Therefore, developing ways to bring innovative technology to communities with a demonstrated need for it, ensures that more people have access to electronic resources. Increased access to technology, coupled with proper instruction, enhances the possibility that those who are currently not computer and Internet proficient, will come to embrace these resources.

The Internet is an invaluable research tool for entrepreneurs seeking to start or grow a small business, allowing them a means of product and market research, as well as a method of locating financial resources. The

Internet also offers the possibility of electronic commerce, allowing small businesses another medium for conducting business transactions.

Yet with all the demonstrated benefits of computer and Internet access, some groups remain less likely to avail themselves of technology resources. An increased awareness of this "digital divide" has stimulated the private sector to intervene with initiatives focused on expanding access of technology to include underserved groups. Community and non-profit groups play an integral role in partnering with telecommunications firms in order to introduce information technology into the communities they serve.

I am pleased to introduce our two panels of witnesses who will acquaint the Members more intimately with the nature of the problem and proposed solutions. On the first panel, we are privileged to have Larry Irving, the Assistant Secretary of Commerce for Communications and Information, who presided over the NTIA study. Mr. Irving will explain the problem of the digital divide by detailing the results of the study. Following Mr. Irving, Maureen Lewis, General Counsel for the Alliance for Public Technology, will share her thoughts regarding the role of technology in our society. Finally we welcome Harris Miller, President of the Information Technology Association of America. Mr. Miller has testified

before the full Committee regarding Y2K and e-commerce and we are pleased to have him back to speak about the digital divide.

Our second panel consists of five witnesses beginning with B. Keith Fulton, Director of Technology Programs and Policy for the National Urban League, who will speak about the League's efforts to bring electronic resources into economically distressed areas. Next we will hear from Tim Robinson, Legislative Attorney at the Ameritech Corporation, who will detail his company's efforts to bridge the gap. We will then receive testimony from Jack Krumholtz, Director of Federal Government Relations at Microsoft, who also will speak about the role of the private sector in introducing technology to underserved areas. Finally, Thomas Coleman, President and CEO of the Technical Careers Institute, located in New York City, will testify about the importance of education in creating a technology-literate workforce.

I am looking forward to hearing the testimony of all the witnesses. I now turn to the distinguished ranking member, Ms. Millender- McDonald, for any opening comments she would like to make.

Empowerment Subcommittee Statement
July 27, 1999

Thank you Mr. Chairman for holding a hearing on this very important subject. Our country has gone from an agricultural based economy to a manufacturing based and now we are in the information based economy. This information age makes it incumbent upon all of us to guarantee that all segments of our society are able to compete and have equal access and

equal opportunity to wonders of the information super highway.

The information super highway is important for small businesses because it provides a means for business to business and business to consumer information and product exchange. It also allows small businesses to compete on a more global frontier. As citizens, the information super highway

provides a new medium in which we can communicate with friends and families, read newspapers online, post our resumes, search for jobs, and check the schedule of the local movie theater.

Coming from a richly diverse district in California, I represent many of the populations that are cited in the Department of Commerce's report, *Falling through the Net: Defining the Digital Divide*. I

am pleased with the Administration for the efforts that they have begun in an attempt to bridge this divide. I am more pleased with the activities of the private and non-profit sectors as it relates to bridging this divide.

As we all sit here today, it is my intent and hope that we listen to these witnesses and begin thinking about the creative solutions to the problems exposed in *Falling*

through the Net.

TESTIMONY OF LARRY IRVING

ASSISTANT SECRETARY FOR COMMUNICATIONS AND INFORMATION

NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION (NTIA)

U.S. DEPARTMENT OF COMMERCE

ON

THE DIGITAL DIVIDE: BRIDGING THE TECHNOLOGICAL GAP

BEFORE THE SUBCOMMITTEE ON EMPOWERMENT

COMMITTEE ON SMALL BUSINESS

U.S. HOUSE OF REPRESENTATIVES

JULY 27, 1999

Mr. Chairman and Members of the Subcommittee:

Thank you for this opportunity to testify today on the findings of *Falling Through the Net: Defining the Digital Divide* ("*Falling Through the Net*"), the study on the "digital divide" authored by the Department of Commerce's National Telecommunications and Information Administration (NTIA). Today, I would like to describe the key findings of this new study. I have also attached to my testimony copies of slides that I will be presenting in my oral testimony before the Subcommittee.

President Clinton and Secretary of Commerce William M. Daley released *Falling Through the Net* on July 8, 1999, during the Administration's New Markets tour through the United States. During this tour, the President and Secretary Daley discussed the fact that, even though information technology underlies much of our nation's economic growth, too many Americans are left out of the digital economy. As a result, the digital divide -- that is, the divide between the so-called information "haves" and "have nots" -- has become one of the critical economic and civil rights issue of this decade.

Access to new technologies, such as the computer and the Internet, will be key to the future economic success of American businesses, communities, and individuals. To begin with, the Internet is becoming an important tool for personal success and professional advancement. Increasingly, Americans are using it to find jobs, contact colleagues, locate public information, or take courses online. Familiarity with new technologies will also prepare more Americans for the high-tech workplace of the 21st century.

Equally important, access to new technologies has become critical to the success of small businesses. Electronic commerce is increasingly helping small companies and entrepreneurs in rural, remote, and traditionally underserved areas. It is enabling small businesses to connect with a global market, find cheaper products, and sell to buyers worldwide. In addition, new

technologies, such as the Internet and high-speed telecommunications networks, are allowing many companies to expand to new regions, supporting the development of new businesses and creating new jobs in many economically depressed areas.

Because of the increasingly important role of new technologies, Secretary Daley has concluded that "[e]nsuring access to the fundamental tools of the digital economy is one of the most significant investments our nation can make." As we enter the 21st century, it will become even more essential to ensure that *all* Americans -- whether rich or poor, urban or rural, Hispanic or Black -- can reap the benefits of these new technologies.

***Falling Through the Net*: Defining the Problem**

Falling Through the Net: Defining the Digital Divide provides a key starting point in bridging the gap between the nation's information rich and poor. It serves as an important diagnostic tool to help determine which Americans have access to new technologies, and which do not. The report therefore provides an important factual basis for policymakers and the private sector to formulate ways to provide greater access for more Americans.

This is NTIA's third report documenting household access to telephones, computers, and the Internet. The first report, released in July 1995, was a landmark subscribership study of U.S. households. The study received much attention and provided important empirical findings for the Administration and other policymakers seeking to assure that no Americans are being left behind in the emerging Information Age. A successor study, released in July 1998, documented the rapid growth of PC penetration and online activity in US households, and underscored the widening "digital divide" between the so-called information "haves" and "have nots."

The new study, *Falling Through the Net: Defining the Digital Divide*, expands on the previous two reports. In addition to documenting connectivity among households, the study

includes valuable new information on how people are gaining access to the Internet; how Americans choose to spend their time online; and why some people are not connected.

As with the previous two reports, NTIA utilized data from the U.S. Department of Commerce Census Bureau. NTIA contracted with the Census Bureau to add questions to its December 1998 "Current Population Survey" ("CPS") on household penetration, specifically to formulate a Computer and Internet Use Supplement survey. The Census Bureau obtained data on these surveys by interviewing 48,000 sample households across all fifty states. This survey asked additional questions regarding points of Internet access, methods of access, types of use, and reasons for discontinuing use, among other topics.

Key Findings from *Falling Through the Net*

Overall, the study presents much good news: more Americans are connected today than ever before. Computer ownership has nearly doubled in four years, and Internet access has increased more than 40 percent in the last year. More than one-quarter of American households have Internet access at home and approximately one-third of Americans are going online from some point. Additionally, those who were less likely to have telephones (chiefly, young and minority households in rural areas) are now more likely to have phones at home.

The Growing Disparities

Nevertheless, there is also some very troubling news. To begin with, there is a persisting "digital divide" between the information rich (such as Whites, Asians/Pacific Islanders, those with higher incomes, those more educated, and dual-parent households) and the information poor (such as those who are younger, those with lower incomes and education levels, certain minorities, and those in rural areas or central cities).

The new data reveal significant disparities, including the following:

- Households with incomes of $75,000 and higher are more than *twenty times* more likely to have access to the Internet than those at the lowest income levels, and more than *nine times* as likely to have a computer at home.

- College graduates are nearly *sixteen times* more likely to have home Internet access than those with an elementary school education level, and more than eight times as likely to have a computer. In rural areas, college-educated households are more than *twenty-six times* more likely to have Internet access.

- Black and Hispanic households are approximately *one-third* as likely to have home Internet access as households of Asian/Pacific Islander descent, and roughly *two-fifths* as likely as White households. Significantly, Whites are more likely to have access to the Internet from home than Blacks or Hispanics have from *any* location.

- Those in rural areas, across all income levels, are less likely to have Internet access than households of similar incomes in urban areas and central cities. A low-income household in a rural area has a less than *one in thirty* chance of having Internet access at home. A rural Black household has less than a *one in thirteen* chance of having home Internet access.

- Northeast central cities and the rural South are lagging behind all other areas in household access to new technologies. For computer ownership, Northeast central cities (30.4%) and the rural South (34.6%) are well behind the national average (42.1%). The same is true for home Internet access: 18.7% for Northeast central cities and 19.0% for the rural South, compared to the national average of 26.2%.

Perhaps even more troubling, the digital divide has *widened* in the last year as the information "haves" outpace the "have nots" in gaining access to electronic resources. The following gaps with regard to home Internet access are representative:

- The gaps between White and Hispanic households, and between White and Black households, are now more than six percentage points larger than they were in 1997.

- The digital divides based on education and income level have also increased in the last year alone. Between 1997 and 1998, the divide between those at the highest and lowest education levels increased 25 percent, and the divide between those at the highest and lowest income levels grew 29 percent.

Nevertheless, the news is not all bleak. For Americans with incomes of $75,000 and higher, the divide between Whites and Blacks has actually narrowed considerably in the last year. This finding suggests that the most affluent American families, irrespective of race, are connecting to the Net. If prices of computers and the Internet decline further, the divide between the information "haves" and "have nots" may continue to narrow.

The Importance of Public Access Points

Until every household can afford access to information resources, it will be important to provide access to computers and the Internet outside the home through public access points. The data in *Falling Through the Net* demonstrate that schools, libraries, and community centers are particularly well used by groups that lack access to new technologies at home and at work. The following examples are illustrative:

- Blacks who use the Internet outside the home are nearly twice as likely to use a public library or a community center for access than Whites.

- Americans earning less than $20,000 are more than twice as likely to get Internet access through a public library or a community center.

- People without college degrees are also significantly (1.4 times) more likely to use these access points than those with college degrees.

Promoting public access points and training programs are, therefore, essential steps to connecting American communities. The data also demonstrate that people who use libraries and other access points are also proportionately more likely than other groups to use the Internet to take courses and find jobs. An investment in such programs is therefore an investment in the economic, professional, and personal growth of hundreds of thousands, if not millions, of Americans.

Solving the digital divide will involve both government and private sector efforts. Government programs, such as NTIA's Telecommunications and Information Infrastructure Assistance Program (TIIAP), are already expanding access to technological resources to underserved areas. TIIAP provides matching grants to non-profits and public entities serving underserved populations through new technologies. The program has helped support such programs as the Mountain Association for Community Economic Development, which is providing technological resources to promote entrepreneurship in rural communities in Kentucky.

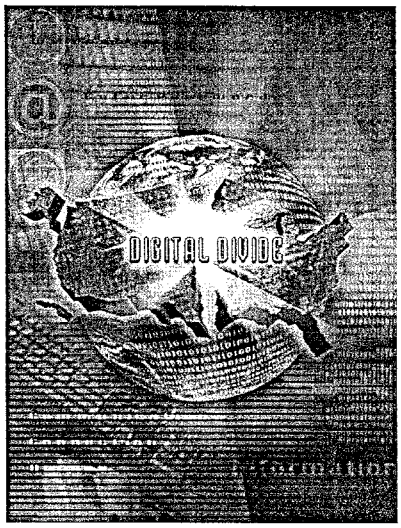
The assistance of non-profit organizations and private industries is also necessary a necessary component in expanding access to new technologies. Industry has already come forward with significant assistance. Companies are supporting the creation of community technology centers, helping connect schools through "NetDays," and donating computers and software to schools and neighborhood centers. The private sector's contribution is essential because these companies know what kinds of skills Americans will need in order to find jobs in

the future.

Additionally, community-based organizations can help provide access to computers and the Internet where communities need it most. Each community knows best how to reach and connect its residents, whether it is through traditional community centers, churches, housing projects, senior centers, museums, fire and police stations, Boys and Girls Clubs, or other centers.

These efforts – on the part of industry, community organizations, and government -- are all necessary to providing additional access points for those without Internet access at home. They will provide Americans with the skills they need to compete in the high-tech workplace and to find new business opportunities. Only with through these continued, combined efforts can we reach our goal of enabling all Americans to participate in the digital economy.

Falling Through the Net



Defining the Digital Divide

Presentation by Larry Irving, Assistant Secretary of Commerce for Communications and Information and Administrator, National Telecommunications and Information Administration, to the Subcommittee on Empowerment, Committee on Small Business, U.S. House of Representatives

July 27, 1999

Household Access

Part I

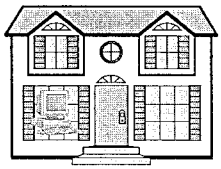


Chart I-1

Percent of U.S. Households with a Telephone, Computer and Internet Use

- Telephone penetration has stabilized
- Computer penetration nearly doubled from 1994 to 1998
- Internet penetration has risen by more than 40% from 1997 to 1998

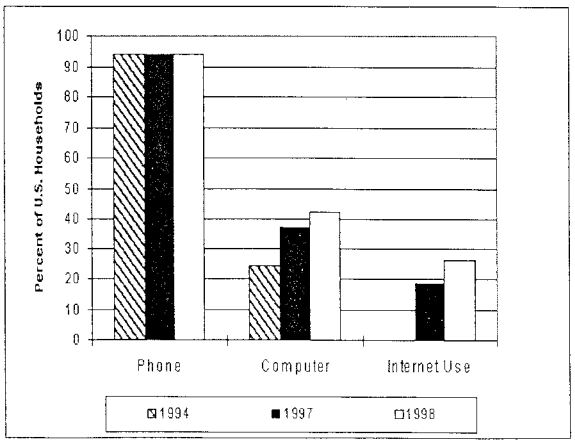


Chart I-12

Percent of U.S. Households with a Computer
By Income and Rural, Urban, and Central City Areas

- Households earning more than $75,000 are *five* times more likely to own computers as those households earning less than $10,000

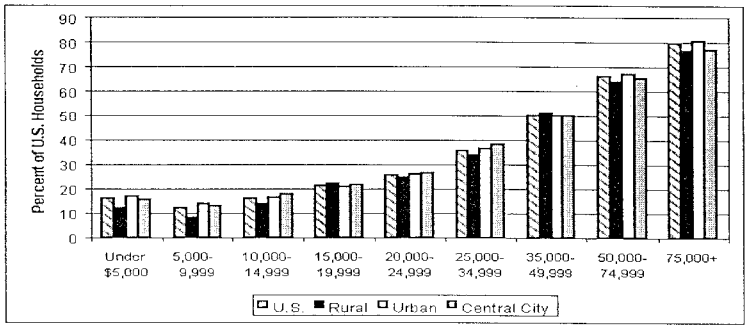
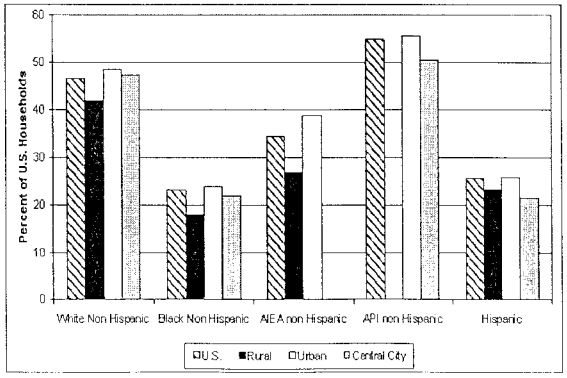


Chart I-13

Percent of U.S. Households with a Computer
By Race/Origin and U.S., Rural, Urban, and Central City Areas



- Whites (46.6%) and Asian Pacific Americans (55.0%) have the highest rates of computer ownership
- Whites are almost twice as likely to own a computer as Blacks or Hispanics

Chart I-15

U.S. Households Computer Penetration Gap
By Race/Origin

- Gap increased from 14.8% to 21.1% between Whites and Hispanics
- Gap increased from 16.8% to 23.4% between Whites and Blacks

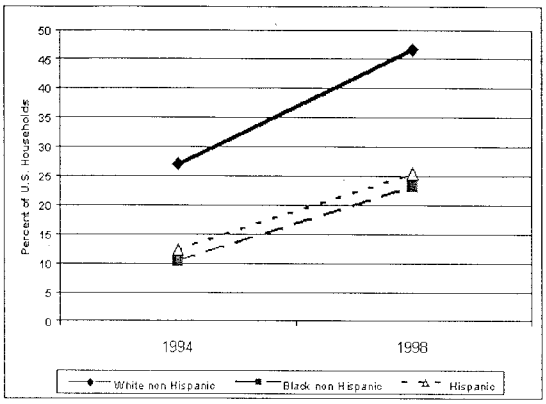


Chart I-20

Percent of U.S. Households with a Computer
By Region and U.S., Rural, Urban, and Central City Areas

- West is clearcut leader for PC ownership (48.9%), while South has the lowest penetration (38.0%)
- NE central cities (30.4%) and the rural South (34.6%) have the lowest rates

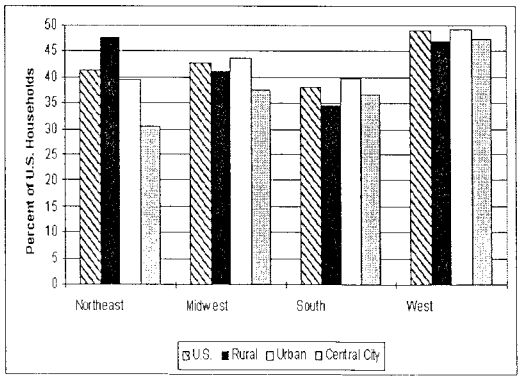


Chart I-21

Percent of U.S. Households Using the Internet
By Income and U.S., Rural, Urban, and Central City Areas

- Households earning more than $75,000 are *seven* times more likely to use the Internet as those households earning less than $10,000

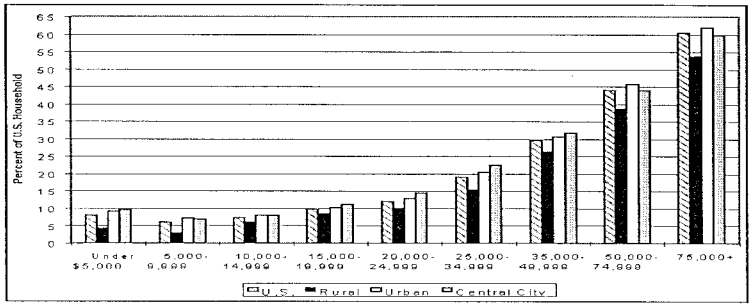


Chart I-23

Percent of U.S. Households Using the Internet
By Race/Origin

- Gap increased from 12.5% to 19.5% between Whites and Hispanics
- Gap increased from 13.5% to 20.7% between Whites and Blacks

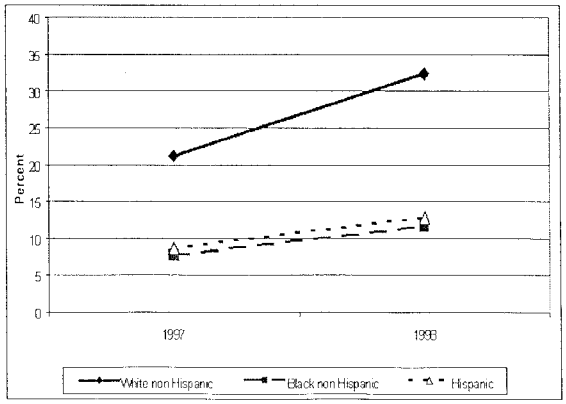
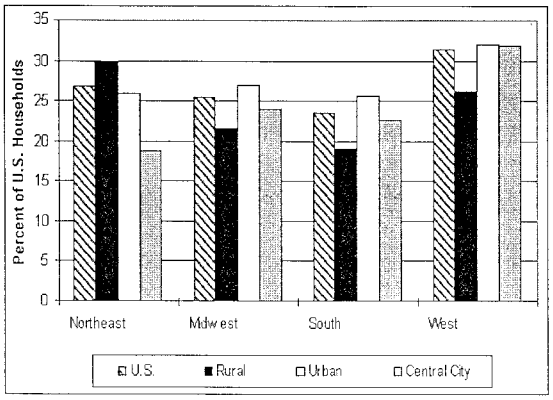


Chart I-28

Percent of U.S. Households Using the Internet
By Region and U.S., Rural, Urban, and Central City



- West leads in home Internet access with 31.3%, while South (23.5%) has the lowest penetration
- NE central cities (18.7%) and rural South (19.0%) have the lowest rates

Internet Access and Usage

Part 2

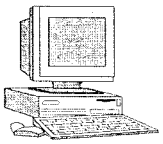


Chart II-1

Percent of U.S. Persons Using the Internet
By Location

- 32.7% of Americans use the Internet at any location
- Almost one quarter use it at home

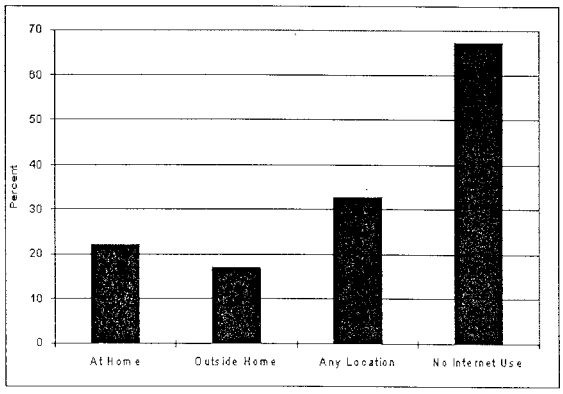
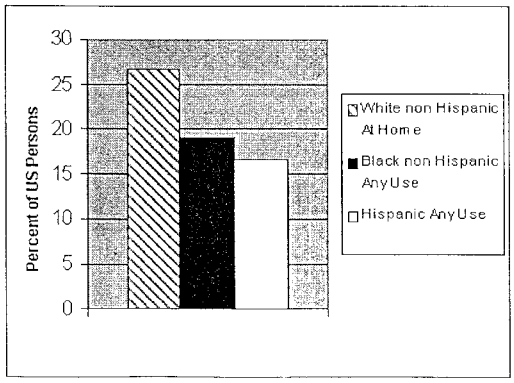


Chart II-3

Percent of U.S. Persons Using the Internet
By Race/Origin and Location



- Whites use the Internet more at home (26.7%) than Blacks (19.0%) or Hispanics (16.6%) use it anywhere

Chart II-17

Percent of U.S. Persons Using the Internet Outside the Home
By Selected Places and Race/Origin

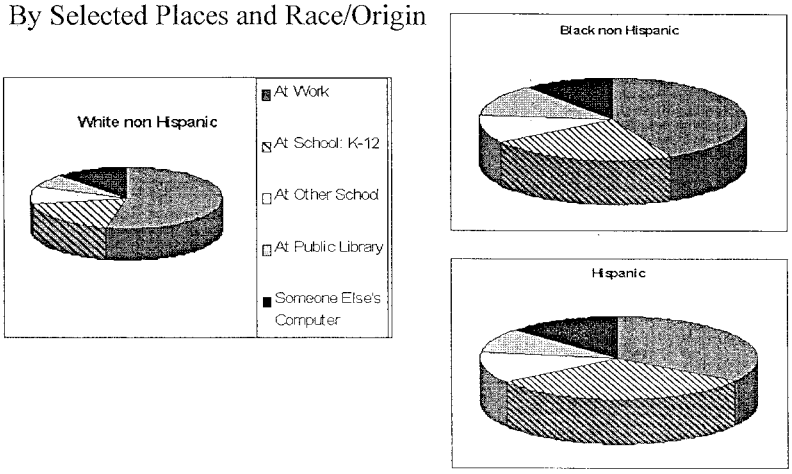
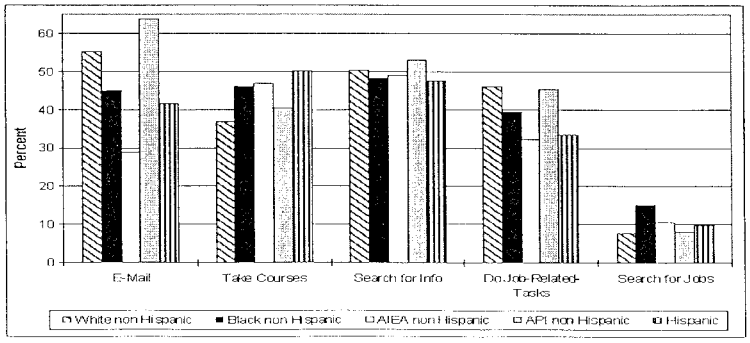


Chart II-39

Percent of U.S. Persons Using the Internet Outside the Home
By Race/Origin and Type of Use

- Blacks and Hispanics are more likely to use the Internet for educational purposes and for job searches



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Alliance for Public Technology

Testimony of
Maureen A. Lewis
General Counsel, Alliance for Public Technology

Presented on July 27, 1999
Before the House Small Business Committee
Subcommittee on Empowerment

Good afternoon Chairman Pitts, Congresswoman Millender-McDonald, and other members of the subcommittee. My name is Maureen Lewis and I am the General Counsel of the Alliance for Public Technology or APT. Thank you for inviting me here to discuss the alarming growth in what has come to be known as the "digital divide." Unfortunately, the digital divide is wide and deep, and it describes the disparity between those who have access to information and new technologies and those who do not. The divide has the potential of exacerbating the problems of people who already lack quality education, affordable health care, satisfactory employment and decent housing. Telemedicine, local and distance learning, and telecommuting, among other applications, are possible through emerging high speed, high capacity networks, which permit users to send and receive voice, data, graphics and video using telephone, cable, wireless, and satellite technologies. These broadband networks can connect people and help communities to address some of their pressing problems, but only if the networks reach everyone, everywhere.

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Telephone: 202.263.2970 (Voice/TTY) • Facsimile: 202.263.2960 • Email: apt@apt.org • Internet: www.apt.org

For more than ten years, the Alliance for Public Technology has been advocating for public policies that promote access to affordable, usable information and communications tools for all consumers, regardless of their income level, place of residence or physical limitations. APT is a national non-profit coalition of individuals and a variety of organizations, such as the National Urban League, the American Foundation of the Blind, the National Association of Community Action Agencies, the National Education Association, and many others that serve senior citizens, people with disabilities, low income families, rural residents, and small business owners.

Recently, APT has been defending the interests of consumers in the telecommunications revolution by urging the Federal Communications Commission to implement Section 706 of the Telecommunications Act of 1996. That provision commands State commissions and the Federal Communications Commission to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans," through use of various regulatory methods and market incentives.

In February, 1999, the FCC issued a report concluding that deployment of advanced telecommunications capability is proceeding satisfactorily. The Alliance disputes this conclusion and remains concerned that the new high speed network providers are bypassing many inner city and rural areas, competing instead for lucrative, high volume, large business users. Consequently, millions of residential and small business consumers are falling into the digital divide.

To combat this problem, APT has been advocating that the FCC undertake a number of measures, such as eliminating certain rules that we believe have discouraged large telephone companies, with their virtually ubiquitous systems, from widely deploying broadband

infrastructure. In addition, the Alliance has urged the Commission actively to stimulate deployment of advanced telecommunications networks in communities that have been left behind. For example, we have suggested that the FCC develop policies that foster partnerships between community based organizations, which pool their demand for services, and telecommunications providers. The partners would work together to develop technology applications that address the critical needs of traditionally underserved communities. APT believes that these partnerships will help to educate communities about the benefits of telecommunications infrastructure, while demonstrating to providers the viability and sustainability of markets they typically overlook as unprofitable.

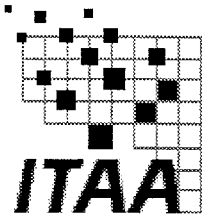
APT has long believed that community efforts to aggregate demand for telecommunications products and services can help to attract providers. Accordingly, APT has suggested that Congress clarify that incumbent local telephone companies may offer at wholesale rates digital subscriber lines (DSL), a broadband technology offered through conditioned copper telephone lines, and other advanced services to entities that are ineligible for the wholesale rates presently available only to telecommunications carriers. One of the major barriers to demand aggregation is the absence of meaningful economic incentives for communities themselves to undertake the costs of aggregation. Therefore, availability of wholesale rates for advanced services could provide an important catalyst for community based organizations, municipalities, academic, medical and other non-profit organizations to resell such services to residents and small businesses.

As another way of promoting demand aggregation, APT has been working with the National Association of State Regulatory Utility Commissioners (NARUC) to develop a proposal that enables state and federal regulators to work together on implementing Section 706.

The proposal asks the Commission to convene an ongoing Federal-State Joint Conference on Advanced Services to address the challenges of providing advanced services to residents of low income and rural communities and to people with disabilities. The conferees, with input from consumers, industry, and other stakeholders would, among other things:

1. monitor the scope and pace of advanced telecommunications deployment;
2. develop deployment strategies that include private initiatives and leveraging federal programs of the National Telecommunications Information Administration, the Rural Utility Service, and the Small Business Administration, among other agencies;
3. disseminate best practices and other information; and
4. experiment in selected underserved rural and urban communities with encouraging investment of public and private resources, consumer education, regulatory methods, and other initiatives in these "706 zones" as ways of promoting broadband deployment in those areas.

Thank you for the opportunity to tell you about the ways APT is fighting the digital divide. I welcome any questions you may have.



Remarks Of Harris N. Miller
President
Information Technology Association Of America

Before The

Committee On Small Business
Subcommittee on Empowerment
United States House of Representatives
On "The Digital Divide"

July 27, 1999

Harris N. Miller
President
Information Technology Association of America (ITAA)

Harris N. Miller became President of the Information Technology Association of America (ITAA) in 1995. Miller directs the day-to-day operations of the association and reports to the ITAA Board of Directors. ITAA is the largest and oldest information technology (IT) trade association, representing 11,000 software, services, internet, telecommunications, electronic commerce and systems integration companies. ITAA has grown more than 25% each year that Miller has been President.

Miller is also President of the World Information Technology and Services Alliance (WITSA), an "association of associations" representing 38 high tech trade groups around the world. Recently he has been named a member of the Board of Directors of ITT Educational Services, Inc., a publicly traded corporation.

Miller leads ITAA's public policy focus in other areas such as encryption, taxation, IT workforce shortage, intellectual property, telecommunications reform, Year 2000 date conversion, and business immigration. He has testified before Congress and state legislatures on numerous issues, and briefed federal, state, and local officials on issues critical to the IT industry. He was a member of the Board of Directors of the 1998 World Congress on Information Technology. He has written and spoken widely on a variety of high tech issues and has been published in various popular and academic journals -- among others, *IT Professional Magazine* published by the Institute of Electrical and Electronics Engineers, and *The World Today* published by The Royal Institute of International Affairs. He also serves on the advisory boards of The Alliance for Technology Education (TATE) and *IT Staffing Solutions*, a Harcourt Brace Professional Publication. He is a much sought after conference presenter both nationally and internationally.

Among many significant accomplishments during the past four years, Miller:

- Conceived the ground-breaking study, "Help Wanted: The IT Workforce at the Dawn of a New Century." Under his leadership, ITAA produced the National Information Technology Workforce Convocation, which brought together leaders from education, government, and industry to formulate partnerships and "best practices" to increase the quantity and quality of IT workers.
- Led the IT industry in supporting the passage of Telecommunications Act of 1996 and assuring statutory protections for IT companies.
- Directed the association's creation of a multifaceted Year 2000 Century Date Change Program. ITAA is widely recognized by both government and industry as the foremost trade association in the Year 2000 area. Played an instrumental role in formulating the International Year 2000 Cooperation Center (IY2KCC) and conducted the first global summit on the Year 2000 issue, bringing together representatives from over 130 nations.
- Helped achieve numerous legislative and regulatory victories for the Information Technology industry, including creation of the Foreign Sales Corporation credit for software exporters, extension of the Research & Education tax credit, an Internet tax moratorium, extension of the H1-B visa limit for highly skilled foreign professionals, and government procurement reform.
- Secured ITAA's position as IT industry sector coordinator for Critical Information Infrastructure Protection under Presidential Decision Directive 63.
- Appeared on numerous network and cable television programs, radio programs and has been quoted in virtually all major national news publications. These include CBS, NBC, CNN, CNBC, BBC, *Wall Street Journal, New York Times, Washington Post, Business Week, Financial Times, The Economist* and many more.

Miller has a broad range of additional public policy experience. Prior to joining ITAA, he was president of Immigration Services Associates, a government relations firm based in Washington, D.C. specializing in immigration issues. Concurrently, he acted as government relations director for Fragomen, Del Rey & Bernsen, P.C., a nationwide law firm specializing in immigration, and he operated his own government relations firm, Harris Miller & Associates, with clients in high tech, agriculture and banking.

In addition to private sector experience, Miller has many years of government service, including assignments as Legislative Director to former U.S. Sen. John A. Durkin (D-NH); Deputy Director, Congressional Relations, U.S. Office of Personnel Management; and Legislative Assistant, Subcommittee on Immigration, Refugees and International Law, Committee on the Judiciary, U.S. House of Representatives.

Miller is also active in professional and civic activities. He served as chairman of the Fairfax County, Virginia Democratic party for six years. He served as co-chair of the Virginia Opera Northern Virginia Finance Committee and was a member of the Virginia State Lottery Board. Miller was chairman of the American Heart Association, Northern Virginia Council; member, Virginia Governor's Commission on the Federal Funding of State Domestic Programs; and served on the board of the National Conference of Christians and Jews, National Capitol Area Region. Currently, he serves on the Board of Directors of The National Center for Technology and the Law - George Mason University's Tech Center, and he is Co-Chairman of the 1999 Wolf Trap Ball Corporate Committee. He is a recipient of *Federal Computer Week's* "Federal 100 of 1999 Award", presented to "...executives from government, industry and academia found by an independent panel of judges to have had the greatest impact on the government systems community...," and was recently featured on the cover of *Association Management Magazine*.

Miller holds an undergraduate degree from the University of Pittsburgh and a graduate degree from Yale University.

Mr. Chairman, and distinguished members of the Subcommittee, on behalf of the over 11,000 direct and affiliate member companies of the Information Technology Association of America (ITAA), I thank you for inviting me to participate in today's hearing on the so-called "Digital Divide," or, as I prefer to refer to it, "The Digital Opportunity."

This issue—or its perception—is important to my industry. Our companies are involved in software, services, the Internet, electronic commerce, professional services, information services, and telecommunications. In addition to serving as ITAA President, I am President of the World Information Technology and Services Alliance (WITSA), consisting of 38 information technology associations around the world. Because electronic commerce is a global issue, ITAA is interested in the topic of today's hearing from both a national and international perspective.

ITAA member companies are helping to shape the information age by creating thousands of new sources of information, turning local and regional markets into global markets, and giving businesses and consumers new and efficient means of trading goods and services. In short, our members are at the forefront of the revolution called "Electronic Commerce."

The importance of electronic commerce and the Internet to the U.S. economy and to American consumers cannot be understated. While estimates of the

growth and size of the electronic marketplace vary widely, the Department of Commerce predicts that electronic commerce will account for more than $70 billion in sales in the year 2000, and Forrester Research projects that more than $327 billion will change hands over the Internet by 2002. Based on ITAA's own surveys, we see a doubling of the electronic commerce marketplace in just the next six months. The growth is in business to business and business to consumer. More government services are being offered electronically. Given this dramatic growth, assuring the opportunity to access the Internet and to participate in the digital economy is not just an empowerment issue—it's an economic performance issue. So let's talk about the "Digital Opportunity."

As you know, a recent report by the Department of Commerce finds that Black and Hispanic households are far less likely to have Internet access than White households. The Internet access gap between these households is growing according to the report, as is the difference between rich and poor and most and least educated. Between 1997 and 1998, Internet access jumped 40 percent across the board, but disparities persist when factors such as income, race, education, and household type are introduced.

Do these disparities constitute an unbridgeable divide between information haves and have-nots? And what role should the marketplace as opposed to the government play in addressing the issue?

I do not believe the numerical disparities are unbridgeable, and I believe natural market forces will quickly fill the breach. The opportunity is for technology sellers, including those who create the content to transmit on the Web and those who want to sell electronically, working with the actual and potential customers, to make this market work. And to realize the Digital Opportunity.

What are some of the factors involved? The World Wide Web is just six years old, yet we see almost one-third of all U.S. homes tapping into the Internet. Typical technology adoption cycles take 20 years; the Web has gone main street in less than one-third of that time, a phenomenal rate of adoption. The ranks of Americans online have swelled from 1.3 million in 1993 to an estimated 80 million today. This is in large part a function of price. The cost of personal computers and related equipment has nose-dived. Moore's Law, named after one of Intel's founders, Gordon Moore, finds integrated circuit capacity doubling every 18 months. At the same time, the average residential customer, according to the Federal Communication Commission, paid just $20 a month for telephone service last year. The FCC points out that hundreds of Internet Service Providers offer unlimited Internet access for less than $20 per month.

Just last week the Federal Communications Committee released a thoughtful report, The FCC and the Unregulation of the Internet. It traces how a policy of government non-intervention in the data and information markets has contributed to the development of the Internet. Back in 1966 the FCC opened the first

Computer Inquiry to consider the convergence of computers and communications. Since then the Commission has tried to maintain essentially a hands-off approach to these markets in order to encourage competition, consumer choice and speed to market. The FCC deserves great credit for pursuing these policies and resisting what may sometimes be the natural impulse of regulators to intervene. We salute the Commission for getting it right.

And, as a result of the Commission's wisdom, we all enjoy the benefits of a competitive marketplace. The incredible increase in performance with lower prices brings the Internet within reach to a majority of consumers. But it does not seal the deal. To be successful, technology must solve a problem or scratch an itch. In his book, Crossing the Chasm, Geoffrey Moore talks about several categories of technology adopters: techies, ready to try anything once; visionaries looking to stay two steps ahead of the herd; pragmatists, the upsiders of the adoption curve; conservatives, bringing up the adoption rear; and skeptics, the "no way" chorus to anything new. Clearly, economics plays a major role in whether you are the first kid on the block to have a GPS mapping system in your car or Palm Pilot in your pocket. It is much easier to try it if you can afford it—and if you can afford to take the risk that your visionary investment will go the way of the Betamax recorder or the eight-track tape player. Economics aside, I think Moore's model points up a larger truth: that people, regardless of class or origin, are different and naturally take different approaches to technology adoption. So if affordable technology is the first plank in my Digital Opportunity

platform, making it compelling is the second—no matter where you fall in Moore's metaphorical chasm- crossing exercise.

Convenient access is the third critical aspect of a true Digital Opportunity. I submit that while there may be minor regional variations, Internet access is a good situation that is getting better every day. In fact, the FCC reports that over 6000 ISPs offer dial-up service and that 95 percent of Americans can shop from among at least four of these local companies. In classrooms, Internet access has chalked up gains of from 35 percent in 1994 to 51 percent last year, according to the U.S. Department of Education. The onset of new technologies will be an additional push to the Web, with the competition forming up in areas like wireless, cable and digital TV. Convenience and choice are bringing the Internet home to consumers—no matter where those homes happen to be.

Bandwidth is still critical. The demand is growing faster even than the growth for more digital power. The answer is simple—competition, especially in the so-called "last mile" to homes and small businesses. Aggressive enforcement of the 1996 Telecommunications Reform Act is essential if we are going to give consumers more bandwidth—and more options to obtain bandwidth—at a lower price.

Let me add a word about the E-rate. Established under the Telecommunications Reform Act of 1996, the "E-rate" program pays for Internet access for schools

and libraries. ITAA has actively participated in the debate over the "E-Rate" program, defending the issues of specific interest to the IT industry. In a brief filed with the Fifth Circuit Court of Appeals on June 2, 1998, ITAA argued schools and libraries should have access to the services of the broadest selection of possible vendors. Drawing upon the language of the Telecommunications Reform Act, ITAA argued that requiring "competitively neutral rules" meant that schools and libraries should be free to use the services of many potential vendors. In order to select the most cost-effective provider of Internet access and internal connections, recipients should be free to choose vendors beyond those affiliated with a telecommunications carriers, to take the fullest advantage of competition. As I noted earlier, convenience and choice are the keys to across the board dissemination of this technology.

Even if we have affordable price, compelling need and easy access, the Digital Opportunity is still not complete. To assure the widest possible participation in the Internet community, all groups must see themselves as members of that community. One of the best ways to vest people in the future of an enterprise is to involve them in its creation. Here I refer to a woeful lack of participation by minority groups in the information technology workforce. The problem is not small-minded employers raising barriers to entry; rather it is a shortage of appropriately skilled and educated professionals in the applicant pipeline. As an example, last year, according to the Computer Research Association's Taulbee Survey, only 10 African Americans received PhDs in Computer Science and only

six Hispanics Americas did likewise. Similarly, only 2 percent of undergraduate computer science degrees were awarded to these groups, respectively.

The workforce data for African American and Hispanic Americans pose a similar challenge. African Americans represent 5.4 percent of all computer programmers and 7.1 percent of computer systems analysts—two of the core jobs in our industry. Hispanic Americans hold 4.6 and 2.5 percent of these jobs, respectively. These numbers are unacceptably low, both from the perspective of finding this common ground—and, not to be too crass about it—finding workers period. Our own studies indicate that one of ten jobs for programmers, systems analysts and computer scientists go begging.

In response, ITAA has set itself on a course to attract under represented groups to the IT industry. Our efforts date to the mid 1980s, when we launched our Success 2000 program. In more recent times, this issue has been front and center at the National IT Workforce Convocations we conducted in 1998 and 1999. We are working with the White House to assess the situation and, this month, co-sponsored an industry forum on the topic at the National Institute of Standards and Technology. And we are also involved in running programs targeted to other under represented groups, such as persons with disabilities and low income women.

Digital Divide or Digital Opportunity? The future is what we want to make it. This much we know today. The Internet is the innovation of our times. The cerebellum of civilization. To reach its greatest potential, we must strive in every way possible to give this incredible resource its greatest possible reach. This is not the White Man's Internet. Or the Rich Man's Internet. Or even the American Man's Internet. Rather, the Internet is the medium with the potential to embrace all mankind. Raising our global IQ. Sharing our common knowledge. Improving our standard of living. Moving us all to a better understanding of ourselves and our fellow man.

Our goal of an expansive Internet is shared. The issue is how we achieve it. We say the market has worked wonders to date. And I assure you that this economic show is just starting.

Thank you very much and I will be happy to answer any questions you may have.

Prepared Testimony of Mr. B. Keith Fulton
Director of Technology Programs and Policy,
National Urban League
New York, NY

Mr. Chairman and members of the Subcommittee, thank you for this opportunity to testify about the Urban League's efforts to partner with industry and government to bridge the nation's "Digital Divide." Today I would like to share insights from our more than 30 years of experience in working with government and industry to bring technology to inner-city communities and to develop a skilled Information Technology workforce. First, I will briefly characterize the National Urban League and our technology-based programs.

About the National Urban League

Founded in 1910, the National Urban League is the nation's premier social and civil rights organization. Our mission is to assist African-Americans and the urban poor with the achievement of social and economic equality. In short, we help people to help themselves by assisting them in their efforts to enter the mainstream of American economy. We achieve this mission through direct service programs, public education, collaboration with industry, government and other community-based organizations, and bridge building between different racial and ethnic groups. We have 114 Urban League affiliates throughout the U.S. in 34 States and the District of Columbia. Three thousand professionals and approximately 30,000 volunteers staff the League. Combined, the Urban League Movement serves close to 2 million people each year.

League History of Technology-based Programs

The National Urban League has operated technology programs since 1968. Our first IBM Training Center opened in Los Angeles, CA. At that time, there was no Internet and no personal computer or "PC." Mainframes were the industry standard. Accordingly, our 10-12 week training programs focused on the COBOL programming language, mainframe upkeep, data entry and keyboarding. The program grew over the years and by 1991 the Urban League operated 32 IBM Training Centers out of a pool of approximately 175 IBM training facilities around the country. Also around this period, the training centers had evolved to a PC platform, as the PC was emerging to be the dominant computing tool in industry.

Thanks to the generosity of companies like Bell Atlantic, Ameritech, AT&T, EDS, and Microsoft, as well as volunteers from the small business community, our work to develop skilled entrants for the Information Technology (IT) industry continues. Our current vision is to build 114 technology education and access centers in low-income areas. We hope that these technology centers, also called "Digital Campus" sites, will be safe places for children and caring adults to access state of the art technology and

training programs. We anticipate that each Digital Campus will contribute an average of 600 entry-level IT workers each year. Finally, we produce a number of books and other writings, forums and training sessions as a public service to help practitioners and policy makers to make the necessary program and policy connections.

Lessons Learned

We have learned a great deal from our rich history and current experiences in delivering technology-based programs to the underserved. Meaningful technology programs and interventions require 5 core elements: vision, infrastructure, innovative content and curriculum, professional development and upkeep and evaluation.

1. The vision element has to do with leadership. Technology solutions, in and of themselves, should not drive program or policy interventions. The technology is genuinely just a tool. The National Urban League ties its technology-based programming directly to its long-standing workforce-development efforts and academic achievement. Investments in information technology should contribute substantially to helping adults to gain marketable skills for the workforce and should help children with their academic performance in school.

2. Infrastructure development in community technology centers requires significant time, talent and resources. Organizations must invest in the proper bundle of hardware and wires to support their vision and mission.

3. Innovative content and curriculum are core ingredients for any program intervention. In short, the fastest computer in the world is no good without a program pedagogy that serves an express purpose.

4. Professional development and upkeep considerations impact the experts who maintain the IT systems and in effect keep programs operating. Provisions must be made to keep both the systems and the people running the systems current.

5. Evaluation ties all program elements together. While this element is the easiest to overlook, it is one of the most important because it informs policy, practice and the flow of resources.

The average cost range for a suitable community technology training center of 20 networked-PCs is $70,000 to $100,000. Staff, office space and other program requirements will drive these minimum costs up. The five elements noted here should be built into the cost of any program that seeks to leverage the benefits of information technologies.

The Digital Divide and Its Implications

In July of this year, the Department of Commerce released its third annual report on the proliferation of information tools, such as personal computers and the Internet. The report, Falling Through the Net: Defining the Digital Divide, is the most comprehensive study to date documenting advances in information technology use by all Americans. While the study found that in the last year PC penetration has gone up 15% and Internet use has increased by 41%, the study also found that the digital divide has widened.

The implications of an uneven distribution of information technology resources are many. Key areas impacted by the digital divide include jobs, education, and opportunity.

1. **Jobs** – Advances in information and communications technologies are driving our "Information Economy." Some experts estimate that IT jobs pay 78% more than jobs in other industries. However, less than 10% of the IT workforce is made up by women and minorities. Interestingly, while two-thirds of all core IT workers have a bachelors degree, 26% have less than 4 years of college and 6% have only a high school diploma or less. If the digital divide is not bridged, the underepresentation of minorities in the IT workforce will proliferate and contribute to the further erosion of inner-cities (e.g., outflow of work to the suburbs, closing bank branches, and falling home-ownership).

2. **Education** – While programs like the e-rate have been critically important for getting Internet access into schools and libraries in the aggregate, only 16% of the schools in low-income areas are connected to the Internet. In contrast, 80% of schools in affluent areas have Internet connections. Further, most libraries do not have the available staff, space or instructor know-how to teach marketable IT skills. These factors will combine to jeopardize the achievement and competitiveness of children in low-income communities, leaving them and their parents relegated to a low-wage and low-skill economy.

3. **Opportunity** – infrastructure "disinvesments" characterize low-income communities. Accordingly, businesses in these communities pay a premium for services and are not able to compete with entrepreneurs in saturated infrastructure areas in the Central Business District and emerging fringe development areas. Resulting savings based on location away from low-income areas can run as high as 30%. These inequities will result in fewer minority-owned IT ventures and fewer small-business generated opportunities in these communities.

Current Efforts to Bridge the Digital Divide

The National Urban League plans to work with industry and government to build 114 Digital Campus technology education and access centers by the year 2006. We believe that this substantial investment in low-income communities is necessary as part of the emerging technical training infrastructure of America. At full operation, we expect our Technology training centers to produce 68,400 new entry-level IT workers per year. We currently have 65 community access centers in place. Over the course of the next 7 years, all of our community technology centers will be upgraded to our current Internet and Digital Campus curriculum standards.

National efforts like the Department of Commerce's Telecommunications and Information Infrastructure Assistance Program (TIIAP) have done a great deal to leverage government and private sector resources for local IT projects. The National Urban League was the beneficiary of a 1997 TIIAP grant. That grant, combined with a generous investment from the Bell Atlantic Foundation, helped the League to pilot our technology education and access center model in 4 U.S. cities (Boston, MA, Baltimore, MD, Binghamton, NY and Newark, NJ). The centers served over 7,000 adults and youth in their first 14 months of operation.

Most recently, we received grants from Ameritech and AT&T to develop 8 Digital Campus technology education and access centers in Washington, DC, Atlanta, GA, Houston, TX, Aurora, IL, Cleveland, OH, Detroit, MI, Indianapolis, IN and Milwaukee, WI. Each Digital campus technology center will have 30-42 PCs, a network, Internet access, on-site training, 24-hour toll-free call support and access to 50 web-based courses for training in industry standard applications and career development. The computer centers will also be safe places for children and caring adults to use computers for academic enrichment.

In each city where we bring these projects, our local affiliate has created collaborations with industry, government, academic institutions and other community based organizations. These local partnerships serve to expand the reach of a given project and the probability of their long-term survival. Government resources provide incentives for these community investments. In a recent year, our technology center in Los Angeles was able to train 1,400 workers, who earned $31 million dollars and paid $2.1 million in taxes. We anticipate similar returns on our investments in other cities and would encourage the study of community technology initiatives nationwide.

In summary, public-private partnerships to build community technology centers can make a significant impact on the digital divide. Practitioners will need reliable pools of resources from government and industry. Programs will also need resources for evaluation and assistance in disseminating findings. Last, organizations with IT know-how should be encouraged to use their convening power and influence to compel other

stakeholders to invest in developing an inclusive IT workforce and for preparing our children to succeed in the 21st Century.

Testimony of Timothy Robinson
Legislative Attorney
Ameritech Corporation
Before the House of Representatives Committee on Small Business
Subcommittee on Empowerment
July 27, 1999

Good afternoon Mr. Chairman and esteemed members of this subcommittee. I am honored by your invitation to detail Ameritech's initiatives to empower more Americans and businesses through information technology and access to information resources. Information technology is responsible for the development of advanced computer networks and the software that powers these networks. While information resources, such as telephones, pagers, personal computers, and Internet access, are those devices that allow users to hook into these networks, tap into databases, and communicate with other network users.

The demand for information resources has been tremendous for two simple but powerful reasons: they make people's lives easier and they make businesses more productive and profitable. We have all witnessed the magic of the Internet in how it keeps people and businesses connected to family and friends, job opportunities and information about leveraging capital and expertise. But the trick behind the magic is how do we ensure that all segments of our society can access this medium in order to unlock their full potential as employees, business owners and entrepreneurs.

At Ameritech, we refuse to marvel at the magic. Instead, we are actively trying, in conjunction with our community-based organizations and business partners, to satiate the growing demand for information resources and services. Just two weeks ago, we announced that we would provide financial assistance to the National Urban League, in the form of a $350,000 grant, to help in establishing five community technology centers. These centers, which are to be known as *Ameritech Digital Campuses*, will be located in central cities throughout Ameritech's five-state service area, including Aurora, Illinois; Cleveland, Ohio; Detroit, Michigan; Indianapolis, Indiana; and Milwaukee, Wisconsin. The grant makes it possible for the five affiliate Urban League chapters representing these cities to install state-of-the-art hardware and software and to train staff to teach students and adults fundamental information technology literacy skills.

On the very same day of our proud announcement, the Department of Commerce released its third serial report, "Falling Through the Net; Defining the Digital Divide." In the report, Commerce Secretary Daley and Assistant Secretary Irving emphasize the alarming fact that Black, Hispanic American and low-income households – particularly those in rural areas and central cities – continue to fall behind their counterparts in access to information resources. Some of the more glaring statistics reveal that:

- Income. High-income households ($75,000 or more per annum) have almost 5 times more access to the Internet than low-income households ($5,000-9,999).
- Race/Origin. Asians/Pacific Islanders and Whites have approximately twice as much access to the Internet than Blacks and Hispanics. And when Blacks, Hispanics, American Indians/Eskimos/Aleuts access the Internet, they are more likely to do so away from home.

- Geography. Internet access for rural households, regardless of race, drastically trails urban households by a sizable margin. For example, a mere 6.3% of rural Black households and 20.6% of rural White households have Internet access at home compared to 29.4% of urban White households.

The report also attests to the instrumental role that community access centers, like Ameritech's Digital Campuses, can and have played to increase Internet access among these underserved groups. As was mentioned earlier, our digital campuses grant is designed to increase Internet access in central cities within the Midwest. In light of the Commerce Department's findings, our grant will benefit some of the geographic areas (i.e., central cities) that suffer most from lack of Internet access, next to rural areas. Also, our grant, which is aimed at Midwestern cities, tracks the fact that the Midwest region ranks above all other regions in percentage of households that access the Internet away from home.

One week following the announcement of our grant to the National Urban League, we publicized our largest-ever commercial ADSL agreement with America Online. Under the agreement, AOL will use Ameritech's ADSL technology to offer high-speed upgrades to its customers in Illinois, Indiana, Michigan, Ohio and Wisconsin. ADSL, or asynchronous digital subscriber line service, exponentially expands the transmission capacity of copper telephone lines. With ADSL service, customers can download Internet content at speeds that are up to 26 times faster (756 kbps) than the conventional 28.8 kbps modem allows. Furthermore, ADSL access is "always on" making it unnecessary for a user to wait for a dial-up connection to be made with their local or regional Internet service provider. By

the end of 2000, we project that 7 million homes will have access to ADSL. An additional one million homes will have access to ADSL by the end of 2001.

Ameritech will also conduct a limited cable modem trial with America Online and the Ameritech.net Speed Path service later this year in the Chicago area. We are the largest cable overbuilder in the United States operating in more than 90 Midwestern communities in Michigan, Illinois, Ohio and Indiana.

These agreements coupled with our deployment commitment will directly benefit small businesses and consumers by giving them new, affordable high-speed choices for accessing the Internet. By firmly placing information resources into their outstretched hands Ameritech is acting as a catalytic force to enhance the lives and fiscal health of its more than 12 million residential and business customers.

More must be done to turn the "digital divide" into a "digital dawn" of opportunities for underserved groups, which will result in an expanded market for our own products and services. In inner cities, where a disproportionate number of Black and Hispanic Americans live, recent studies show that retail buying power amounts to $100 billion a year. And, although Blacks comprise nearly 13% and Hispanics comprise 10% of the population, they respectively own less than 4% and 6% of all businesses. These numbers demonstrate there is considerable room for growth in the formation of minority businesses, and Ameritech believes that it can tap into that growth while also providing some of the tools and information resources to spark that growth.

It makes perfect business sense to focus on increasing minority and rural access to information resources to close these disparities. Last year, the Internet economy generated an estimated $300 billion in revenue and employed approximately 1.2 million people. It is astounding that from the World Wide Web's appearance five short years ago, the Internet economy, which is now one of the world's top 20 economies, has amassed revenues that rival the revenues generated by century-old sectors such as energy ($223 billion), automobiles ($350 billion) and telecommunications ($270 billion).

Notwithstanding this meteoric rise, Ameritech believes that government can and should do more. That is why Ameritech petitioned the Federal Communications Commission (FCC) for authority to provide data services to its customers across arbitrarily defined geographic boundaries, known as LATAs.

According to the FCC's rules, Ameritech and a select number of local telephone service providers (aka RBOCs) cannot transport voice or data services from a user in one LATA to a user in another LATA. This statutory prohibition, which the FCC has interpreted as applying equally to voice and data, is excessively broad in scope.

The prohibition's basis, as it relates to data service, in particular, is not compelling. Why is that? Well, in Ameritech's case we do not have any semblance of market power in the area of data transport service. The evidence of this is clear: After five years of offering data services to customers, Ameritech has managed to garner only approximately 5% of

market share for transport services, including ADSL, frame relay and other high-speed data transmission services. Accordingly, regulators should not fear that we would upset the market by unduly influencing prices or the terms and conditions upon which others may gain access to our services.

This prohibition has hindered our ability to offer appealing and useful data service packages to our customers. For example, we could not carry data from one of our southside Chicago customers who might want to register electronically for an on-line college course 150 miles away at the University of Illinois in Champaign. Nor could we carry data across our networks for a retail goods firm that needs to download inventory data from its suburban warehouse to its urban retail outlets; so long as those two facilities are located in different LATAs. The perverse result is that a capable communications company, like Ameritech, is needlessly shut out of the burgeoning data market, thereby denying customers another viable choice among service providers.

Due to this particular prohibition, Ameritech lacks the right mix of incentives to deploy digital networks even more aggressively than it already has. If the FCC freed data services from this regulatory lock-up it wold dramatically improve the prospects for small businesses and entrepreneurs to grow and sustain their businesses. Such an exemption would empower small businesses by facilitating their acquisition of appropriate and competitively-priced tools, like high-speed data services, allowing them to compete better in today's Internet economy.

Congressmen Billy Tauzin and John Dingell have introduced H.R. 2420 that would wisely eliminate this restrictive prohibition, which only serves to impede the growth and availability of high-speed Internet access. The bill currently has 46 co-sponsors. We would ask that you also consider supporting this bill because it is good for our country's economic health, our businesses, and our employees. Through information resources, Ameritech's residential customers who help make up __ percent of America's workforce, become more alert to the world around them, more adaptive to changing societal conditions and more employable to business owners. Making these resources more accessible, yet affordable, to our large and small business customers will yield benefits to the US economy through higher productivity, lower barriers to entry and quicker speed to market.

Thank you for the opportunity to testify before this subcommittee. I look forward to addressing any questions that you may have on this important topic.

TESTIMONY

Jack Krumholtz, Microsoft

House Small Business Subcommittee on Empowerment
"Closing the Digital Divide"
July 27, 1999

Good afternoon. Thank you Chairman Pitts, Congresswoman Millender-McDonald and members and staff of the subcommittee. I am Jack Krumholtz, Director of Federal Government Affairs for Microsoft. It is a pleasure to be here today.

I would like to thank the Chairman and the committee for taking a leadership role on this most important issue. The committee has assembled an impressive panel, and I am pleased to be participating on Microsoft's behalf.

At Microsoft, we feel strongly about the need to provide access to technology for all Americans regardless of location, income, ethnicity or educational background – to close what has become known as the "digital divide". We have already learned that there are no simple solutions, and that a successful effort to close the divide will require partnerships between the public and private sectors, the government and non-profit organizations, and people of all political persuasions.

Since our inception in 1975, Microsoft's mission has been to create software that empowers and enriches people's lives in the workplace, at school and at home. Microsoft's early vision of a computer on every desk and in every home is coupled today with a strong commitment to Internet-related technologies that expand the reach of all Americans.

We offer a host of products including software platforms such as our popular operating system Windows, applications including the leading suite of productivity applications Office, tools for software developers and online and interactive media programs and services such as Encarta and the Microsoft Network. Our products are available in more than 30 languages, and are sold in more than 50 countries.

As a nation, we are reaching a new and exciting stage in the technology revolution where computers are easier to use, and less expensive to manufacture and own. New devices providing many of the capabilities we now **expect** from the personal computer, including connectivity to information and services available on the Internet, are being introduced in a wide range of prices. At Microsoft, we have a long-

term commitment to assuring ease-of-use and lower costs because it is our strong belief that technology enables people to achieve great things. That philosophy is the foundation of our business and it is the foundation of the Microsoft Giving Programs that started in the early 1980s and expanded beyond Washington State in the 1990s.

Through our Microsoft Giving Programs, we seek to bring the benefits of information technology to people and communities who do not have access to this technology. Our vision of a computer in every home would be incomplete without the vision of access to technology for all Americans.

Our community affairs efforts do not only involve in-kind and financial grants. We believe in giving back to the community and encourage our 30,000 employees in over 60 locations worldwide to take an active role in their communities. We support their efforts in volunteerism and mentoring programs so they can contribute to organizations and activities they care about. Microsoft also supports many local non-profit organizations in the communities in which we have a presence and encourage our employees to do the same.

Today I am here to talk to you about Microsoft's efforts to contribute to bridging the gap between the technological haves and have-nots.

In the *Washington Post* Business Section on Thursday, July 22, Kirstin Grimsley reported on a recent survey conducted by Rutgers University which revealed that only 39% of the working poor and unemployed people they surveyed had access to the Internet, compared with 76% of all other employees. Carl E. Van Horn, a professor of public policy at Rutgers sites this study as a clear example of the 'digital divide". He stated: "People without access to the Internet are cut off from many opportunities in today's economy."

But what is particularly striking is that this same Rutgers' survey also found that 80% of the working poor surveyed were interested in improving their education and learning the skills necessary to lift themselves up to better jobs and better futures.

The interest is there. The ambition is there. But there is a need for greater access to technology.

At Microsoft, we believe that part of our obligation as a responsible corporate citizen is to work hard to help address this problem. We believe it is about much more than simply writing a check. In the new high tech economy, information technology skills are no longer a luxury, they are a necessity. Our efforts are aimed at providing greater opportunity to people

and places that would otherwise not have access to technology. We are pleased that other companies, particularly in the computer and telecommunications industries, share these objectives. Microsoft has partnered with companies such as Gateway, Hewlett-Packard and AT&T on several projects to this end.

Our approach to philanthropy is to start small with pilot projects, form partnerships with interested parties on both the local and national level, evaluate what works, and expand our efforts and programs based on what we have learned.

We have a number of programs, products and practices in place that are advancing this vision and efforts to bring access to technology to all Americans, to bridge the gap between the technological haves and have-nots.

Microsoft is providing direct assistance to underserved communities. We have established Connected Learning Community Grants to enhance learning and communication in disadvantaged communities to provide no charge access to technology at community centers, children's hospitals, Boys and Girls Clubs, and low-income housing technology centers.

I would like to briefly share with you our library initiative. In 1996, we launched a pilot program – Libraries Online -- at nine public libraries across the country. With the American Library Association and local library officials as our partners, the objective was to provide access to information technology and the resources of the Internet to some of the most disadvantaged, and underserved, communities in the U.S. Because libraries are a vital informational resource for communities, we believed this initiative would reach the most members of the community, from school children to senior citizens.

We learned a great deal from this initial pilot program. We learned that training librarians to use the Internet and software, as well as how to maintain the machines was as important providing the funding and donating the machines and software. In the subsequent years of the program we provided a one-week training program for the librarians participating in the program, and provided ongoing help desk support.

When it became apparent that the Libraries Online program had met with such significant success, the Gates Learning Foundation, established by our chairman Bill Gates and his wife Melinda, expanded the program to library systems around the nation, with the ultimate goal of wiring every library in the country. We are partnering with the Foundation by providing software to the libraries. Together our goal is to ensure that

every library in the U.S. has the training and resources they need to provide their communities access to information technology and the Internet.

Microsoft is empowering schools, colleges and universities. Recently we presented an award to UCLA for a program that enables kids in disadvantaged neighborhoods to map community assets on a computer and then use this information to improve their lives. Microsoft also awarded two grants to the American Indian Science Technology Education Consortium (AISTEC) for upgrading technology infrastructure and increasing access to technology at four tribal colleges. Over the past four years we have also assisted historically black colleges with over $21 million of donations in cash and software to improve the use of technology on their campuses and to help develop computer science curricula. Just as important, we have brought faculty from these colleges to our corporate campus for training programs each year.

Another example of our efforts to bridge the digital divide is **MICROSOFT'S WORKING CONNECTIONS** program. Working Connections is a five-year, $9 million program administered by the American Association of Community Colleges. Community colleges play a critical role in providing education and workforce training to lower income individuals, displaced workers, single mothers, legal immigrants, and low skilled employees and unemployed adults. Working with the American Association of Community Colleges and visiting several of these institutions, we concluded that community colleges have both the capacity and the interest to prepare their students to enter the information technology workforce.

We established Working Connections to encourage development of innovative information technology programs in underserved areas. Its goal is to train workers to succeed in IT careers, and to open the IT world up to minorities and women, where jobs and opportunities are plentiful, but the workforce supply is not. Grants to community colleges from Microsoft fund an IT curriculum, faculty training and/or outreach to local community groups and industry.

With the committee's indulgence, I would like to briefly relate one if the many compelling success stories associated with the Working Connection initiative.

Kelly McCloud, is a student at Charles County Community College (CCCC), in Maryland. She taught herself about computers long before she had regular access to a PC. Kelly recently described how when she was growing up the family did not have a PC, so instead she read all of the basic computer books and manuals to be prepared for the day when her

family could afford one. Unfortunately, her Dad decided they could not afford one. So Kelly said she continued to read the manuals anyway. Just in case.

The interest was there. The ambition was there. But there was a need for access to technology.

Now 21 years-old, Kelly is not only enrolled in CCCC's Working Connections program, but she is also helping other college students achieve basic skills at both the campus-run help desk and the student-operated help desk called the SheD.

Through the Working Connections program at CCCC, students must put in 10 hours a semester at the SheD, helping other students with their basic questions about the Internet and software technologies. This aspect of the program not only allows Kelly to improve her knowledge base, but also encourages her and the other students to encourage others to do the same. The Working Connections students who staff the SheD go through a 5-week "boot camp" over the summer in which technical computer training is linked with "soft" skills that will help them succeed in the work force -- teamwork, work ethics, customer service, communications, and problem-solving skills.

Working Connections is not only about improving access to technology. It is about building better learners, better workers, better managers, and better citizens. It is technology at its best.

In addition to the two initiatives I just described, Microsoft is working through other channels to help bridge the gap between the technological haves and have-nots:

Microsoft has an outreach program with businesses and technical groups. We have established a Minority Owned Businesses initiative to provide technology grants to individual minority-owned businesses. Recently we made software contributions to the National Minority Business Council and to the Association of Small Business Development. And we are proud of our Internet Relations Project to assist professionals active in local chapters of technical organizations, such as the National Urban League, Women in Technology International and the National Society of Hispanic MBAs, that serve minority communities.

Microsoft is collaborating with nonprofit organizations. Non-profit organizations serve a very broad range of needs in our country but have generally been behind in using technology to become more productive and efficient. We are partnering with various non-profit organizations to use technology to better serve their mission. A recent award to the Urban

League will allow them to bring all of their offices online, and another to the Boys and Girls Clubs of America will help them establish a National Technology Center pilot program. We are also partnering with the Boys and Girls Clubs of America to promote and encourage Internet Safety, so that all families can feel safe in their use of technology.

Microsoft is improving access to rural America. In one of the nation's poorest rural areas, we provided a software grant to the Ogala Lakota Tribe in Pine Ridge, South Dakota, which will help connect -- online -- Ogalala Lakota College and four other regional educational institutions. This will allow them to better communicate and share resources and information in their efforts.

We believe that all of these initiatives are helping us bring access to technology to businesses, education facilities and regions in the U.S. that are underserved, and being left behind in the high tech revolution.

Closing. These are just some of the many ways Microsoft is bringing access to technology to underserved communities and individuals, and along with that access, learning, opportunity and hope. It is an ongoing process.

As we move forward with our initiatives, we continue to learn more about what works, and where best to invest our money, time and resources. We have learned that training people to use technology is just as important as providing them access to technology. We have also learned that closing the digital divide will take a coordinated effort. No single party or entity can do it all. The best programs must include partnerships between the public sector, the private sector, and non-profit entities. There is a need for local schools, towns, and leaders to work together with state and federal entities, and small businesses to work with mid-sized and large businesses.

There are many other corporations working to close this technological divide, including America Online, Ameritech, and Harpo Communications and their efforts deserve recognition, as well.

We look forward to collaborating with educators, legislators and members of the business community to bridge this gap, and bring technology to everyone, everywhere.

We appreciate the opportunity to appear before you today and thank you for your time and attention.

APPENDIX ON MICROSOFT GIVING:

* Microsoft gave more than $26 million in cash donations and $80 million in software (estimated retail value) to almost 2,000 non-profit and educational organizations during its 1999 fiscal year which ended on June 30. And our donations continue to grow significantly.

* More than two thirds of Microsoft employees participated in the employee giving programs, which match employee gifts to non-profits up to $12,000 per employee per year. Together, Microsoft and it's employees donated more than $19 million in cash and $23 million in software (estimated retail value) to charitable organizations across the United States.

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Statement
of
Thomas M. Coleman
President
Technical Career Institutes, Inc.
on the
"Digital Divide"
before the
House Small Business Committee
Subcommittee on Empowerment
July 27, 1999

Good afternoon, Mr. Chairman, members of the Subcommittee. My name is Thomas M. Coleman, and I am President of Technical Career Institutes (TCI), a two-year, degree-granting proprietary school located in Manhattan. It is a pleasure to be here today to discuss the "Digital Divide" and share our experiences in providing access to technology to the nation's most economically disadvantaged.

Technical Career Institutes opened in 1909 under the direction of Nobel Prize winner, Guglielmo Marconi. Since its inception, TCI has maintained a reputation for excellence in technology education. From its founding as the Marconi Institute, through its operation as the RCA Institutes under the presidency of David Sarnoff, to the TCI of today, the College has been on the cutting edge of technology education for ninety years.

Beginning with a focus on practical hands-on training for the radio and television industry, TCI has continually broadened its focus. Currently the College offers two-year degree programs in Electronics Engineering Technology, Industrial Electronics Technology, Air Conditioning, Heating & Refrigeration Technology, Building Maintenance Technology, Computerized Accounting, and Office Technology. In addition, one-year certificate programs are offered in selected majors.

Today TCI serves more then 3,500 students in programs designed to prepare a well-trained workforce in various fields of technology. TCI's diverse student body, 75% of which are African American and Hispanic, include 55% who come from families with an average annual income of less then $12,000. Some are new Americans requiring English as a second language instruction to supplement their education. Many have attended poor performing high schools which, for many reasons, lag behind the rest of the nation in instructional technology, computer ownership and teacher training, as well as access to the Internet. Therefore, remedial training is a critical component in preparing our students for the highly technical workplace of today.

Despite these challenges, TCI was recently identified by Community College Week, based on information provided by the U.S. Department of Education, as ranking first nationally in the production of two-year engineering-related associate degrees. We are very proud of the accomplishments of our students, particularly in view of the extraordinary challenges many of them must overcome to receive their degrees.

The College works in partnership with the business community to articulate the realistic expectations of the modern workplace, serving to build a strong bridge between what the marketplace demands and what the College is teaching. Our business and industry advisory committees meet with faculty and administration to review curriculum, discuss new technology, and suggest strategies for making our programs more industry responsive. This process supports our mission of meeting the needs of our students, their prospective employers, and the community as a whole.

Today's schools and businesses encounter a generation of disadvantaged youth at an economic crossroads. Their access to, and attitudes toward, technology will in large part determine whether they will appear on the tax rolls, or the welfare rolls, of the 21st Century. Few actually choose the latter; rather, due to their lack of basic skills, their attempts at success in today's technological workplace are often met with failure, and ultimately, despair. Our students want jobs, meaningful jobs with long term growth potential, to support themselves and their families and to contribute to the community. The future of this at-risk population depends on our ability to mobilize the resources of business, schools, community-based organizations, parents, and government. This mobilization is about creating opportunity for our nation's disadvantaged youth to develop the critical academic, technical, and social skill essential for workforce success.

TCI has been educating economically and socially disadvantaged inner-city students for a long time. We have adopted many innovative strategies; some have worked, some have not. However, we continue to explore and employ various approaches to raise the academic, technical, and employability skills of our students.

Several years ago, TCI recognized the disparity in the opportunities for economically disadvantaged students to gain the essential computer skills required for today's workplace. TCI has attempted to address this "technology gap" by taking a pro-active role in committing economic, technical and educational resources to serve our student population.

For example, in 1988, TCI initiated a program to introduce computer technology training to community and faith-based organizations in the Flatbush section of Brooklyn. Working with the clergy and community, we invited women who were returning to the workplace after raising a family, and those attempting to move from welfare to work, to come to our campus for free computer training. The program preceded today's welfare-reform movement; its success was a credit to the courage of program participants to brave a world of technology which they perceived as a gateway to a career, economic independence, and the ability to take control of their destiny.

In the 11 years the program has been in effect, 1,300 women have participated. Some have left the program for good jobs that were previously unavailable to them; approximately 20% have enrolled at TCI; many of the rest have enrolled at other post-secondary institutions. Regardless of how they applied the skills learned in this program, we feel we have contributed to the growth of their self-esteem, workplace orientation, and understanding of the expectations of the workplace.

Twice a year, we conduct a graduation ceremony within the Flatbush community, inviting members of the clergy, the community, and families to participate in the joy and accomplishments of the program participants. Just two weeks ago, I had the opportunity to participate in one of these graduations. With me on the stage were a member of the U.S. House of Representatives, community representatives, and a member of the New York City Council.

One of the greatest challenges facing the college and business communities is dealing with the academic and employability deficiencies of high school graduates. We find through our academic testing and placement process, that many high school graduates read and perform math far below grade level.

The College realizes that addressing the technology needs of workers is just one aspect of the equation. Employers tell us that academic and employability skills are also critical to job success. In order to respond to these educational deficiencies, TCI has developed a personalized Student Success Program to assist students in improving their basic academic skills and essential workplace competencies. New students have the opportunity to participate in a "bootcamp" experience prior to attending classes at the College. This intensive program is provided at no cost and emphasizes the math skills required for academic success. During the semester, students may continue to utilize the College Learning Center which is staffed by members of our faculty, peer tutors, and specialists in each of the technical disciplines.

While this "boot camp" approach has increased the chances of success for many of our students, we quickly came to realize that it takes more than a couple of weeks to overcome many of our students' lifelong underexposure to technology. We therefore have recently initiated a Technology-Based After School Initiative to introduce computer technology to 11th and 12th graders enrolled in the New York City public schools. Later this year, the program will be expanded to include a customized remedial math skills development program designed to prepare students for college-level course work in technology-related careers.

This after school program offers two technology courses: an Introduction to Computing and a Visual Basic course. These are required courses in TCI's Industrial Electronics Technology (IET) Program. Students who successfully complete the courses will receive three or six credit hours toward the associate degree in the Industrial Electronics Technology Program.

We also learned that community service is a strong self-esteem booster which assists our students in developing the tools for success in the workplace. We have created a program that our students have chosen to call "Dare to Dream." This unique service-learning program was originally founded to assist individuals with limited English to improve their conversational skills by volunteering with community agencies. The program has evolved into a multi-faceted opportunity for our students to volunteer in their communities, tutor children in public schools, repair air conditioners and computers for elderly and handicapped persons who lack the resources to acquire such equipment. The program has received donations from our business partners of computers, printers, and screens.

The computers are refurbished by our students as part of a hands-on learning experience and donated to persons with disabilities or organizations providing services to economically disadvantaged individuals. Corporate donors including Metropolitan Life, Radio City Music Hall, IBM, Time Life, CIBA, Leventhel Corporation, Viacom, and PBS have contributed to the effort. We have received and donated more than 300 computers to organizations such as the New York City Public Schools, community facilities for the handicapped, hospitals, AIDS residential facilities, community-based organizations, and individuals with disabilities. We are currently entering into an agreement with the Harlem Council of Churches to set up a community access center in Harlem, as well.

Another, recent initiative which has provided me with a great amount of personal satisfaction has been our Women in Technology Program. We developed this program in response to feedback from our graduates, employers, and advocates for equal opportunity

in the workplace to help our female students overcome the barriers faced by women in technical careers.

We learned that women in technical careers receive less compensation than men, are not employed in the same ratio as men, and often encounter resistance from co-workers. However, high-tech jobs are also high-paying jobs. Our program recognizes the obstacles women face in these areas, and seeks to support our female students in their pursuit of the high-tech skills that will lead to better jobs and greater financial independence. The program has been structured to assist women entering into careers in technology and those seeking information on technical careers. We provide our students with mentoring to prepare them to succeed in non-traditional occupations. Since the inception of this program, we have experienced an increase, from 25% to 29%, in the percentage of women enrolled in our technology programs.

The College has conducted several workshops targeted toward minority women, as well. We recently developed a working arrangement with the Woman-To-Woman Project, a program operated by the Center for Children and Families. Participants in the program will receive computer training and workplace skill development through this joint venture at no cost to the participants or the Woman-to-Woman organization.

The recent report issued by the Department of Commerce, "Falling Through the Net: Defining the Digital Divide," clearly states the implications of the disparities in computer literacy and Internet penetration in low-income households, and the limited availability and utilization of computers. In this context, businesses must reach out to community and faith-based organizations, schools and government. They must support neighborhood-based Internet and technology centers, provide business mentors, donate equipment, and make computers in schools and colleges such as ours available during non-instructional hours. Government can help by creating incentives for the business community to become more directly involved with schools and colleges as training partners. The use of tax and other economic incentives is one way to encourage these activities in the private sector.

The picture I have presented to you today is intended to give the Subcommittee a sense of what one institution has been able to accomplish, inspired by our faculty and students, to raise the occupational awareness of the community, provide service learning experiences for students, and integrate our institutional mission with the economic development needs of our community.

We view TCI as the training engine that drives small-business development in New York City. The majority of TCI graduates are employed in small companies, providing a source of trained workers and a generation of tax-paying consumers. The private sector is spending millions of dollars to train new, as well as incumbent, workers. In that context, it makes good business sense to develop integrated training initiatives between schools and businesses. We must consider a new paradigm for these strategic alliances; businesses, community access centers and schools must integrate and coordinate education and training services. We would be pleased to assist this Subcommittee in devising models that create incentives for schools, businesses and local communities to work together toward this common goal.

While it is becoming increasingly clear that a traditional, four-year academic degree is not for everyone, in the technology age of the 21st Century, at least some post-secondary technology education will be essential to gain employment and retain the ability to grow with the introduction of new technology. The intellectual and monetary advantages of having access to technology provide personal, as well as economic, empowerment. Getting connected is more then "surfing the web", it's about e-commerce, exploring new

markets, home-based businesses, and opening the economic door to a generation of disadvantaged individuals. Even the job-search process is now based in Internet exploration. Hundreds of web-sites now exist which post recent job openings, job descriptions, and provide the opportunity for Internet application and job selection. Access to technology may well become a prerequisite to employment in the new millennium.

Therefore, I would ask that the Subcommittee consider the benefits of school and business partnerships specifically designed to assist in the development of small business. The small business community often has very specific training needs that cannot be met by big business training programs or human resource development organizations. Small business owners increasingly are requiring a technically trained workforce that is familiar with the latest in computer technology and Internet skills.

The federal government may want to consider encouraging private sector employers to develop strategic relationships with schools and colleges by providing tax credits for the purchase of computers, for technical assistance provided to schools, or for providing access to technical facilities during non-essential time periods.

In conclusion, I am here today to tell you that the Digital Divide is real, and that it is getting wider every day. But for the programs I have spoken to you about this afternoon, many of TCI's students and graduates would have fallen through that divide already. If I were to offer one observation based on my experiences of the past few years, it would be this: if we are to succeed in closing the technology gap for future generations, we must be willing to blur the distinctions among business, academia and community.

Institutions such as TCI cannot afford to isolate our students and faculty in ivory towers of academic thought. We must reach out to the communities where our students and prospective students live, to lay a solid groundwork in math and technology skills at the high-school level and even before. We must reach out to our local businesses, where our graduates will work, to constantly be sure that the skills we are providing are the skills prospective employers want and need. And we must reach into the hearts and minds of the students we serve, giving them the skills, the confidence and the opportunity to succeed in our nation's increasingly digital economy.

I want to thank the Chairman and members of this Subcommittee for your interest in this important issue and for the opportunity to appear before you today. I would be happy to answer any questions you may have.