FLORIDA STATE UNIVERSITY

HOW TO BRIDGE THE DIGITAL DIVIDE
The Role of Federal Government for Social Equality

AN ACTION REPORT SUBMITTED TO THE FACULTY OF THE COLLEGE
OF SOCIAL SCIENCES IN CANDIDACY FOR THE DEGREE OF MASTER
OF PUBLIC ADMINISTRATION

REUBIN O’D ASKEW SCHOOL
OF PUBLIC ADMINISTRATION AND POLICY

BY
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The honorable John H. Marburger, Director
Office of Science and Technology Policy
Executive Office of the President
725 17th Street Room 5228
Washington, DC 20502

Dear Director Marburger:

It is my pleasure to submit to you “How to bridge the digital divide: The role of federal government for social equality.” This document is the result of research and analysis of a variety of data sources during the 2006 summer semester. The report is intended to provide an analysis of the current status of the digital divide as well as policy recommendations to narrow the digital divide in U.S.A.

Currently, there is not clear evidence whether the digital divide exists. Nevertheless, the digital divide is an essential issue to address because the Internet offers the potential to improve civic life and the educational opportunities. If the federal government plays a leadership role in assuring that all Americans have access and skill, it could fully realize the potential offered by technology and narrow the inequality in economic opportunity and democratic citizenship.

After examining three policy options, my primary recommendation for the federal government is to create the “Digital Opportunity Investment Trust” (DO IT). This recommendation is based on three evaluative criteria: equity, financial feasibility, political viability. The implementation of these recommendations can help the federal government to improve the quality of citizens’ life in the U.S. through bridging the digital divide.

If you have any questions or need any further assistance, please do not hesitate to contact me at (850) 385-5336 or by e-mail at hk05c@fsu.edu.

Respectfully,

Hakyun Kim, MPA
Florida State University
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Executive Summary

The TOP and the CTCs program were slated for elimination in the 2003 budget. Since then, conflict has erupted over the fate of the TOP and CTC programs. In this process, there have been two issues yet to be addressed: whether digital disparities will disappear of their own accord through the rapid diffusion of the Internet, and whether government intervention is appropriate, regardless of the existence of the digital inequities. Due to the diverse political background and recent development of the “digital divide” issue, a consensus is lacking on these key points.

Nevertheless, the Digital Divide is an essential issue to address because the Internet offers the potential to improve civic life and educational opportunities. If the Internet remains an unattainable good to citizens with lower socioeconomic statuses, it will intensify current social divisions, resulting in the widening of economic inequities. If the federal government plays a leadership role in assuring that all Americans have the access and skill needed to participate fully in the Digital Age, it could fully realize the potential offered by technology and narrow the inequality in economic opportunity and democratic citizenship.

This report reviews several previous studies that proved the existence of the digital divide and explained the factors causing the digital divide. This report finds that the majority of prior literatures have just described the trends without strong theoretic base. This report accepts the conservative assumption that the digital divide exists and the major barrier for getting people online is the cost of Internet access. Based on this assumption, this report examines three policy options to bridge the digital divide. Each policy option is evaluated based on equity, financial feasibility, and political viability.
Through assessment of each policy option in relation to the three evaluative criteria, this report recommends that the federal government create the “Digital Opportunity Investment Trust” (DO IT), option three. DO IT has broad objectives, including technological innovation in education, digitization of collections, and enhancing digital access. These objectives make this option more viable politically than the other options.

To better improve the quality of citizens’ life in the U.S., however, the other two options should be seriously considered and implemented. In the long-run, the principle of political equality demands that all segments of the population should enjoy the benefit of Information technology.
I. Problem Statement

In 2002, the US Department of Commerce released its report examining Americans’ use of computers and the Internet. This report drew an optimistic picture of Americans’ use of information technology. However, some of the studies, such as those of the Benton Foundation, showed that underserved communities continued to significantly lag behind and that the digital divide remained a persistent problem. The Benton Foundation report noted that significant divides existed between high and low income households, different racial groups, and rural and urban households. This report recommended that the federal government continue playing a leadership role in assuring that all Americans have the access and skills needed to participate fully in the Digital Age.

Nevertheless, in 2002 the Bush Administration eliminated funding for two premier grant programs that were designed to bridge the digital divide. One is the Technology Opportunities Program (TOP) and the other is Community Technology Centers Program (CTC). The Bush Administration argued that these programs had met their goals and that the American public is coming online at a satisfactory rate. The Bush Administration also asserted that the private sector rather than government should be responsible for supporting programs to close the digital divide.

After this, many critiques argued that, although Americans were getting connected in increasing numbers, the digital divide still existed. Many feared that cuts in the federal budget would make it more difficult to address inequalities related to technology access. Furthermore, they argued that the failure to address the gap would likely aggravate current levels of poverty and social isolation and increase the already large gaps in education and opportunity between historically privileged and historically disenfranchised groups (Servon et al., 419).

Due to the newness of the “digital divide” issue, a consensus is lacking on three key
points: 1) the extent or existence of the divide; 2) the role of government in bridging the divide; and 3) the types of policies necessary to correct the problem. Nevertheless, the Digital Divide is an essential issue to address because the Internet offers the potential to improve civic life and educational opportunities. If the Internet remains an unattainable good to citizens with lower socioeconomic statuses, it will intensify current social divisions, resulting in the widening of economic inequities.

This report reviews several previous studies that proved the existence of the digital divide and explained the factors causing the digital divide. It also analyzes the responses of the federal government to the digital divide, including the E-rate, TOP, and CTCs. Finally, it suggests the policy options which can narrow the current digital divide.
II. Background and Literature Review

1. Background

In 1995, the Commerce Department published its first report detailing disparities in computer and modem ownership. However, the Internet went unnoticed in this first report, for the Internet had not yet gained widespread acceptance and was still mainly a tool for academics and the defense industry. The second report (1998) measured Internet access and found that, although Americans were expanding their access to the Internet, there were growing disparities based on race, ethnicity, and income. The third report (1999) and fourth report (2000) reconfirmed that disparities in information technology were based on race and ethnicity as well as education and income. Most striking was the gap between individuals with a household income greater than $75,000 (77.7 percent) and those with a household income less than $15,000 (12.7 percent, a difference of 65 percentage points (Mossberger et al., 19).

Based on these reports, the Clinton administration implemented programs to address disparities in information technology usage. Initiatives such as the E-rate, the Technology Opportunities Program (TOP), and the Community Technology Centers Program (CTCs) were put into place to increase the access of disadvantaged groups to the Internet and high technology (Mossberger et al., 16). Established as part of the Telecommunications Act of 1996, the E-rate program offered discounts on telecommunications technologies to schools and libraries. The E-rate alone has provided Internet access for children in more than 1 million classrooms. The number of schools connected to the Internet has increased from 35 percent in 1994 to 89 percent in 1998. The TOP and the CTCs awarded matching grants for model projects. The TOP supported the model projects demonstrating innovative uses of network technologies.
evaluated and shared the lessons learned from these projects to ensure the benefits are broadly distributed across the country. The purpose of the CTC program was to create or expand Community Technology Centers that provided disadvantaged residents of economically distressed urban and rural communities’ access to information technology and related training. These centers received some Federal funding from the one or more of the federal agencies, including the Department of Education, the Department of Housing and Urban Development, the Department of Commerce, and the National Science Foundation.

In 2000, President Clinton announced his plan to narrow the gap during his State of the Union address. This brought the “digital divide” issue to the forefront of the nation's consciousness. Since then, numerous discussions have taken place, debating the divide’s causes and implications, and the role of government in bridging the divide. In March 2000, the digital divide was a central topic of discussion on CBS Sunday Morning. Finally, in April 2000, President Clinton led a "new markets" tour to mobilize public and private partnerships to address this "key civil rights issue of the 21st century" (Pinkett, 3).

However, in 2002, the situation changed drastically. The fifth report (2002) took a decidedly optimistic turn, entitling its findings “A Nation Online,” in contrast to the “digital divide” of a few years earlier (Mossberger et al., 4). Base on this report, the Bush administration began to cut back on programs that aimed to stimulate the penetration of information technologies to lower income communities (Cooper, 1). The TOP and the CTCs program were slated for elimination in the 2003 budget. Since then, conflict has erupted on Capitol Hill over the fate of the TOP and CTC programs. Clashes over federal policy revolve around two issues: whether disparities will disappear of their own accord in light of the rapid diffusion of the
Internet, and whether government intervention is appropriate, regardless of continued inequities (Mossberger et al., 4).
2. Literature Review

Weaknesses of the literature

An extensive number of investigations into the digital divide have been conducted by government agencies, the private sector, and nonprofit organizations. However, the majority of current studies rely primarily on descriptive statistics. This approach is inadequate for making claims about the root causes of the problem and can be open to different interpretations (Mossberger et al., 17). For example, although both the Bush administration and members of the Digital Empowerment Campaign assessed computer access in the United States using the same report, *A Nation Online: How Americans Are Expending Their Use of the Internet*, one saw a glass that is half full while the other concluded that the access glass is half empty (Mossberger et al., 16).

Kvasny et al. (2002) warned that the digital divide issue could be too easily misdirected if the concepts and issues continue to be treated in an atheoretical and preconstructed way. They pointed out that the commonplace definition of “digital divide” came from the National Telecommunication and Information Administration’s (NTIA) “*Falling Through the Net*” policy reports. They concerned that most contemporary academics had largely taken up the digital divide discourses as the government had formulated them, even though the scope and meaning of the digital divide was unclear. Accordingly, the concepts of the digital divide discourse brought together the uniquely American ideals of social equality, public education, universal access, and technological progress. The emphasis, to date, has been to describe the digital divide in statistical terms as a means of presenting trends and demographics. These statistics are often used to create and justify categorizes such as “people on the wrong side of the divide” and “information have-nots.”
However, this discourse is further privileged sometimes by the naïve use of science that legitimizes the exploitation and disadvantage of minority groups. For instance, the 2002 NTIA report has been used by the Bush administration as an evidence to justify a closure of the divide (the term digital divide is not mentioned in the document), and the subsequent retrenchment of digital divide funding (Kvasny et al., 4).

Performance Indicators

Although prior empirical researches and discourses are incomplete and controversial, they can be used for developing important indicators of a public policy. This section reviews the reports of the U.S. Commerce Department (2002) and Benton Foundation (2002), academic studies, and a variety of useful articles.

The Commerce Department’s report (2002), A Nation Online, found that more than a half of the nation is now online. In September 2001, 143 million Americans (about 54 percent of the population) were using the Internet — an increase of 26 million in 13 months. In September 2001, 174 million people (or 66 percent of the population) in the United States used computers.

It also contended that Internet use is increasing for people regardless of income, education, age, races, ethnicity, or gender. For example, between December 1988 and September 2001, Internet use by individuals in the lowest-income households (those earning less than $15,000 per year) increased at a 25 percent annual growth rate while Internet use in the highest-income households (those earning $75,000 per year or more) increased at a much slower 11 percent annual growth rate. It also described that over the 1988 to 2001 period, growth in Internet use among people living in rural households averaged 24 percent annually, and the percentage of Internet users in rural areas (53 percent) almost pulled even with the national average (54 percent). This report concluded that, using a standard methodology to gauge
inequality, inequality among various groups is decreasing. As these trends continue, new information technologies will become more widely shared by an ever-expanding number of Americans.

However, the Benton Foundation report (2002), *Bringing a Nation Online*, came to a different conclusion using the same data as the Commerce Department’s report did. It criticized the Commerce Department’s report (2002), *A Nation Online*, claiming that it painted an overly optimistic picture of Americans’ use of information technology. It contended that, while some of the data clearly showed that there were increasing numbers of Americans connected to the Internet and computers, the same data also showed how specific segments of society—particularly underserved communities—continued to significantly lag behind and that the digital divide remained a persistent problem. For example, by September 2001, just over 80 percent of children (ages 10-17) in the lowest income category were using computers at school, little different from the 88.7 percent of children at the highest income level. In the lowest income category, however, only 33.1 percent of children use computers at home, in contrast to 91.7 percent of children in the highest income category.

The Benton Foundation report (2002) emphasized that federal leadership has helped to accelerate the adoption of 21st century literacy skills among economically and geographically distressed and otherwise underserved communities. This report also concluded that cost remained the most important reason that many families do not acquire Internet access at home. Finally, it asserted that the federal government must continue playing a leadership role in assuring that all Americans have the access and skill needed to participate fully in the Digital Age.
Causal Explanations

While these two reports described the digital divide trends, academic studies have tried to find which factors are responsible for disparities in access. Nie and Erbing (2000) found that only education and age matter in the digital divide. Cooper (2002) also asserted that education, age, and income are the three best predictors of access to the Internet at home. However, these studies reported only simple frequencies and percentages.

Mossberger et al. (2003) addressed the weakness of previous research. They examined broad trends in their own 2001 survey data, using simple percentages. Then, they analyzed data on Internet access using information drawn from the 1996, 1998, and 2000 American National Election Studies (ANES) survey. The ANES is a nationwide, large-scale study that conducts in-person and telephone surveys using randomly selected respondents. Simple percentages are supplemented by multivariate regression procedures and a Monte Carlo simulation technique that estimates probabilities and predicts the likelihood of information technology access (Mossberger et al., 24). Their study showed that income plays an important role in determining home Internet access, controlling for other factors, including education, age, race, ethnicity, gender, and partisanship. All else equal, individuals in the lower income category had a 39 percent probability of having Internet access at home, compared to those in the highest income group, who had a 63 percent probability of enjoying home Internet access, a difference of 24 percentage points.

Mossberger et al. (2003) also compared the reported gaps in access to the Internet based on race, ethnicity, education, and income from the NTIA2000 survey, Pew Research 2000 survey, and analysis of their low-income survey (Tolbert, Stansbury, and Mossberger 2001). The NTIA2000 survey result was reported in the NTIA fourth report (2000), Falling through the Net:
Toward Digital Inclusion, and the Pew Research 2000 survey administered by the Pew Research Center was reported in the Pew Research Center’s Who’s not Online report. They found that all three studies based on different survey data and statistical methods report persistent gaps in access to the Internet based on race, ethnicity, education, and income. They concluded that the digital divide still exists even when the most recent data are applied, which data have been heralded by the Bush administration as evidence that the digital divide is vanishing and insignificant.

**Government’s Role**

Even though evidence demonstrates the existence of the digital divide, that is not justification enough for public action. For a condition to qualify as a political issue rather than a personal concern, there must be something at stake for the larger society (Mossberger et al., 5).

Thierer (2000) argued that the market was effectively closing the access gap and that government intervention was a waste of public dollars and would undermine market forces. Compaine (2001) also pointed out that digital technology is becoming easier to use, reducing the skills barrier as well as cost. Both Thierer and Compaine regard the digital divide as solvable by normal market forces.

However, First and Hart (2002) referenced the digital divide as the new measure separating the “haves” from the “have-nots.” They argued that providing access to the Internet is a civil rights issue and that the digital divide is technically a form of discrimination due to the ubiquitous nature of the technology. Furthermore, First and Hart (2002) are convinced that this discrimination is covered under such laws as the Americans with Disabilities Act, the Fourteenth Amendment, and the 1964 Civil Rights Act. They recommended that government regulation
should be introduced to assure that all people have equal access to this information and communication technology.

Mossberger et al. (2003) also asserted that Information technology skills and access are “public goods,” because, like education and libraries, they are capable of providing positive externalities associated with economic prosperity and democratic governance. In other words, technological skill and access have spillover benefits beyond the individuals concerned. They contended that the market was unlikely to resolve either information illiteracy or technical incompetence. They also pointed out that political participation is restricted by the access divide.

III. Methodology and Evaluative Criteria

1. Methodology

Information for this report has been collected by examining of government reports, laws, and academic research. In reviewing the prior studies and researches, this report found that few comprehensive studies have been performed analyzing the cause of the digital divide. The majority of prior literatures have just described the trends without strong theoretic base. Accordingly, diverse interpretations are possible according to political background.

In fact, contending policy views suggest three ways of looking at the digital divide. The first is that the digital divide does not exist. The second view suggests that the digital divide exists, but that the situation is improving. The third view suggests that the digital divide exists, but rather than improving, the situation is worsening (Kaiser, 3).

This report accepts the assumption that the digital divide exists and the major barrier for getting people on-line is the cost of Internet access. It also assumes that the role of government in bridging the divide is to deliver the benefits of technology to all citizens.
2. Evaluative Criteria

Three criteria were selected to evaluate the proposed options: equity, financial feasibility, and political viability. Each criterion was scored on a decision matrix situated to fit the data source. Each of these criteria was assigned a score of low, moderate, or high with low being negative and high being positive. A rating of low represents little or no agreement with the listed criterion; a moderate rating exhibits an average accomplishment of the criterion; a rating of high portrays a thorough accomplishment of the criterion.

Equity

Public policy should pursue equity as an important principle of government. People who are poor or less educated should be entitled to an equal opportunity to access essential information to improve their lives. Accordingly, the problem of the digital divide is closely related with the equity. The goal of bridging the digital divide should be achieving the political and social equity.

The problem of the digital divide is multidimensional; an access divide, a skills divide, an economic opportunity divide, and a democratic divide (Mossberger et al., 9). In order to effectively bridge the digital divide, options should include the followings;

1) increasing the access to Internet at home or public sites,

2) computer training how to use software or the web, and

3) delivering the benefits of technology relevant to the user’s life.
Financial Feasibility

It will be very expensive for governments to facilitate the expansion of computers and Internet access. Furthermore, simply providing computers and Internet access cannot bridge the digital divide. It also needs informational educational and training programs. Offering the funding for both Internet access and proper education will be a burden of government.

This criterion means whether the federal government can economically implement each policy option. A policy option rates low if it would be too costly or could not find source of funding. The data sources for financial feasibility are academic literature and government or non-profit organization publications.

Political viability

Since 1999, the Clinton Administration had made closing the digital divide a national priority through several administrative initiatives and budget proposals. However, the Bush Administration eliminated the programs designed to bridge the digital divide. This shows that there is no bi-partisan support for federally funded programs that subsidize digital access. In fact, there are major differences in the role of government related to the problem of the digital divide.

The Bush Administration, Republicans, and conservative think-tanks, including Cato Institute and the Heritage Foundation, assert that education is at the root of digital divide. They emphasize the reform of education system for the 21st century. In contrast, The Democratic Party and some civil rights groups regard education as a part of a broader argument that the digital divide is indicative of deeper structural problems that include discrimination, particularly in regards to infrastructure development in low-income communities. This criterion means whether each policy option can meet the need of both stakeholders.
IV. Management Policy Options

**Option one: Expanding the “Universal Service”**

The best way of narrowing the digital divide is to increase the home access. For this purpose, the federal Universal Service Fund can be used. This Fund has been financing several federal government programs to bridge the digital divide, including the E-rate program and the Low-income program. The Low-Income program provides discounts on telephone installation and monthly telephone service to qualifying consumers. This option adds residential Internet access for low-income households to the basic telephone service.

This option can be implemented by the decision of the FCC. According to the Telecommunications Act of 1996, the goal of the Universal Service is to promote the availability of quality services to all consumers, including those in low income, rural, and high cost areas at rates that are reasonably comparable to those charged in urban areas. This law also calls for a revision of the universal service system. The revision must expand both the base of companies that contribute to offset communications service rates and the category of customers who benefit from discounts (section 254). Furthermore, the Telecommunications Act of 1996 defined the Universal service as an evolving level of telecommunications services that the FCC shall establish periodically, taking into account advances in telecommunications and information technologies and services. This Act directs the FCC to consider whether telecommunications services (A) are essential to education, public health, or public safety; (B) have, through the operation of market choices by customers, been subscribed to by a substantial majority of residential customers; (C) are being deployed in public telecommunications networks by telecommunications carriers; and (D) are consistent with the public interest, convenience, and necessity.
Equity: The Equity for this option can be rated as high.

As the internet is becoming the major means of personal communication and commerce in the information age, being connected at home is essential to education, public health, public safety and other aspects of life. The Internet access at home will offer opportunities that cannot be equaled in making education, culture, medicine and services available to all parts of the country and all segments of our population.

Cooper (2002) and Mossberger et al.(2003) emphasized the importance of the home access. Both Cooper and Mossberger et al. pointed out that most Americans use computers and the Internet at home or work, and a much smaller percentage (about 15 percent) use public access services at libraries or Community Technology Centers. The percentage of people who use computers in places outside the home is similar for both those with and without home access, for Internet use in public place is sporadic. Accordingly, the policy to narrow the digital divide should focus on the home access.

Cox (2003) also emphasized that the top priority to solve the problem of the digital divide must be placed on increasing access to the Internet. He said as follows;

Roughly 150 million Americans live in homes with Internet access. That means that about 140 million Americans live in homes without Internet access. No matter how hard we work to enhance the value of educational resources on-line, those resources aren't going to do anything for those Americans who don't have access. Therefore, the top priority, increasing access to the educational resources on the Internet, has to be increasing access to the Internet. (House of Representative, 5)
Financial Feasibility: The Financial Feasibility for this option can be rated as low.

This option requires more than $2.25 billion, which is the cap of the E-rate. The E-rate is applied only to public access, including schools and libraries. In contrast, this option will be extended to low-income households. It will cost much more than the E-rate does.

From the perspective of the possibility of expanding the Universal Service, the Universal Service Fund is already under pressure to meet its current financial obligations. This option will require new sources of revenue to cover residential Internet subscriptions, such as fees on an installment and services. Accordingly, this option may collapse the Universal Service Fund’s long-term financial health.

Furthermore, The Universal Service Fund is supported by fees from telecommunications companies, not federal dollars. As it is currently structured, the Fund receives fees only for certain types of telecommunications services, such as “land-line long distance.” Some are being challenged by newer services, such as e-mail and Internet long distance, which do not generate Universal service fees. Some says that the Universal Service Fund’s long-term financial health has been already becoming weak.

Political viability: The political viability is low.

Expanding the scope of discount services or adding revenue resources would likely to require a major political push and a more expansive economic climate (Henry J. Kaiser Family foundation, 9). In addition, Some Republicans believe choosing particular forms of access to subsidize will distort the telecommunications market. Others believe that home access is spreading at an acceptable rate and that further expansion should be left to the market place, or do not think that home access is a true necessity in contrast to basic phone service.
Furthermore, the E-rate has some serious criticism. In June 2004, the Federal Communications Commission reported numerous instances of waste and fraud in the program. Currently, there are several proposals to eliminate or restructure the E-rate in Congress.

**Option two: Reviving the Community Technology Centers Program**

Another response to the existence of a digital divide has been the establishment of Community Technology Centers to offer the necessary services for a community to bridge its digital divide. Community Technology Centers are created through various sources, including government funding, private sector and business philanthropy and nongovernmental organizations. The second option is to subsidize the Community Technology Centers.

To resolve the problems of the digital divide, a community must do more than seek to increase access opportunities. Solutions need to also include means to improve education to ensure that citizens will use computers and the Internet (Kaiser, 1). Community Technology Centers were built for these purposes.

However, bridging the digital divide is not something that will happen simply because of the existence of Community Technology Centers. These centers should be run effectively. In fact, centers funded by private corporations were more successful than centers that were reliant on public sources and grants, for government support and social budgets were too slim to cover the costs associated with running a Community Technology Center (Kaiser, 7). To make matters worse, government support was completely eliminated in FY 2005. Currently, many Community Technology Centers are being threatened because they cannot find another resource of grant.

**Equity:** The Equity for this option can be rated as moderate.

Community Technology Centers provide not only the physical apparatuses necessary to
be connected, but also provide computer training to members of the community who may not otherwise have the knowledge to use technology services. In the light of the equity, Kaiser (2001) emphasized the importance of centers. He said as follows:

The centers appear to be a successful way to provide access for underrepresented groups. The centers serve racial minorities, people with low educational attainment, and people from low-income levels who otherwise may not have access. Being located near and within public housing areas, the centers have identified impoverished areas that could benefit as well.

Although public access, including libraries and Community Technology Centers, has positive effects on the low-income community, it has a limitation. Mossberger et al. (2003) pointed out that low rates of use were problematic. They found that those without computers and the Internet at home are not more likely to use public access than those who have home access. They analyze the cause of the low use as follows;

Public access site may require users to wait long periods for their turn, impose strict time limits on computer sessions, filter out useful websites deemed to have controversial content, and provide users with little privacy. Libraries in poor urban neighborhoods or rural areas may have only a few terminals and insufficient numbers of staff to explore and use the computer in the same way that someone with an Internet connection at home would. In many communities, access through CTCs or nonprofit programs is sporadic or nonexistent. (Mossberger et al., 129)

**Financial Feasibility:** The Financial Feasibility for this option can be rated as moderate.

In FY 1999, the CTCs program awarded grants to 40 organizations in the amount of $10 million, while 750 centers applied for the grants. This program reached the apex in FY 2001.
The amount of budget came to $65 million. More than 1300 centers applied for the grants, and 147 centers were awarded. Suppose that the number of centers is 1300 and award $500,000 to each center, it will cost 650 million per year. It is a relatively low cost compared to Option 1 and Option 3.

However, the economic situation is not good. The federal budget moved from surplus to deficit. In addition, the current trend in Congress is toward using block grants to implement federal programs. To make a new fund for reviving the CTCs does not seem easy.

**Political viability:** The political viability is low.

CTCs program was eliminated completely in FY2005, as part of an effort to consolidate education-related technology spending under the No Child Left Behind Act (NCLB) of 2001 (Henry J. Kaiser Foundation, 7). Accordingly, the incumbent Administration and the republican do not want to retreat to the CTCs program.

**Option three: Create the “Digital Opportunity Investment Trust”**

The Digital Opportunity Investment Trust (DO IT) proposal was developed by Minow, former Chairman of the FCC and Grossman, former president of NBC News. In 2003, Senators Dodd and Snowe, along with Senator Durbin, introduced S-1854 titled “The Digital Opportunity Investment Trust Act.” The DO IT would be created through a portion of the revenues from the spectrum auction and proceeds of airwave.

With an estimated $1 billion per year, the DO IT trust would attempt to fuel technological innovation in K-12 and higher education, as the National Science Foundation and the National Institute of Health do in their fields (Henry J. Kaiser Foundation, 11). It would fund projects ranging from online reading tutors to lifelong learning tools. The trust would also digitize the
collections of libraries, universities, and museums, making them available online both to schools
and the general public. The bill says as follows;

USES OF FUNDS- To achieve the objectives of this Act, the Director of the Trust, after
consultation with the Board, may use Trust funds--

(A) to help underwrite the digitization of the collections in the Nation's universities,
museums, libraries, public broadcasting stations, and cultural institutions; (B) to support
basic and applied research, development, and demonstrations of innovative learning and
assessment systems as well as the components and tools needed to create them; and (C) to
use the research results developed under subparagraph (D) to create prototype
applications designed to meet learning objectives in a variety of subject areas and
designed for learners with many different educational backgrounds, including--

(i) strengthening instruction in reading, science, mathematics, history, and the arts in
elementary and secondary schools, particularly in academically struggling school
districts; (ii) providing the training needed for people now in the workplace to advance in
a constantly changing work environment; (iii) training needed for teachers to utilize new
tools and technologies in the classroom; and (iv) instruction in community centers,
libraries, community colleges, universities, other institutions of higher education,
and through public television and radio stations; (v) supporting projects that
enhance the access of individuals with disabilities to advanced telecommunications
services; and (vi) supporting after-school programs with youths focused on
computer literacy and education.

Equity: The Equity for this option can be rated as high.

DO IT approaches technology as a tool of reducing educational and economic inequities
among both children and adults (Henry J. Kaiser Foundation, 11). Its supporters like to compare this bill to the Land Grant Colleges Act of 1862. The Land Grant Colleges Act provided for the sale of public lands to support the establishment of a public college and university in every state, so that higher education would be accessible to farmers and workers, not just to the elite and wealthy few.

Even though this bill does not address whether all schools, libraries, or homes will have the Internet and computer to handle advanced contents and applications, the bill reconfirms that the digital divide still remains in many areas of our country and many citizens lack the skill set necessary to compete for jobs in a 21st Century digital economy in sec. 3. “Findings.” Accordingly, the potential uses of this fund will increase the home access as well as public access.

**Financial Feasibility:** The Financial Feasibility for this option can be rated as moderate.

As earlier stated, this option will cost $1 billion per year. Considering federal budget status, it does not seem easy to create the trust. However, the revenue from spectrum auctions will come to 18 billion. Currently, the proceeds of spectrum auctions go to general federal revenues and are not earmarked for any specific purpose.

**Political viability:** The political viability is moderate.

While it has not yet made much headway legislatively, DO IT has received support from a number of organizations and individuals, including the American Association of Universities, CEOs from leading high-tech companies, the American Library Association, the Communication Workers of America, and the American Association of Museums. Both Republican and Democratic members of Congress agreed with the Grossman-Minow proposal.
However, there have been political barriers to overcome. Some critics contend that the proceeds from spectrum auctions should be returned directly to taxpayers. Others assert that spectrum funds should be directed to infrastructure and access, either instead of or along with content development.

V. Conclusion

This report has examined three policy options to bridging the digital divide. Each policy option was evaluated based on equity, financial feasibility, and political viability. Following Table summarizes the results.

<table>
<thead>
<tr>
<th>Option 1: Expanding the “Universal Service”</th>
<th>Equity</th>
<th>Financial Feasibility</th>
<th>Political Viability</th>
<th>Overall Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 2: Reviving the Community Technology Centers Program</td>
<td>Moderate</td>
<td>High</td>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td>Option 3: Create the “Digital Opportunity Investment Trust”</td>
<td>High</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
</tr>
</tbody>
</table>

Option One, expanding the “Universal Service,” is the most essential to narrow the digital divide. It aims to increase the home access to the Internet of the low-income household. However, it is too expensive only for the purpose of narrowing the digital divide. It needs more political support to be implemented. On the contrary, the “Universal Service is threatened to be reduce since 2004, for the FCC reported numerous instances of waste and fraud in this program.
Option Two, reviving the Community Technology Centers Program, is rated the most cost-effective. It is a relatively low in the respect of cost compared to Option 1 and Option 3. Furthermore, this option includes means to improve education to ensure that citizens will use computers and the Internet as well as to increase access opportunities. However, CTCs program was eliminated completely in FY2005, as part of an effort to consolidate education-related technology spending under the No Child Left Behind Act (NCLB) of 2001. Accordingly, the possibility to take this option is very low politically, even though it is cost-effective.

Option Three, creating the “Digital Opportunity Investment Trust,” is the most politically viable. This option is not developed to narrow the digital divide. It has broad objectives, including technological innovation in education, digitization of collections, and enhancing digital access. These objectives make this option more viable politically than the other options. Actually, both Republican and Democratic members of Congress agreed with this option. The cost of this option will be $1 billion per year. It is not a small amount. However, it has specific source of fund. It can use the revenue from spectrum auctions, which will come to 18 billion.

Through assessment of each policy option in relation to the three evaluative criteria, creating the “Digital Opportunity Investment Trust,” option three, ranks the highest of the alternatives and would be the most viable option. That is, through this policy option, the federal government can fully realize the potential offered by technology and narrow the inequality in economic opportunity and democratic citizenship.

To better improve the quality of citizens’ life in the U.S., however, the other two options should be seriously considered and implemented. In the long-run, the principle of political equality demands that all segments of the population should enjoy the benefit of Information technology.
REFERENCES


