



Initiative for
Collaborative Government

Partnering for Mission Results



WHITE
PAPERS

llenge, Opportunity, Expertise, Security, Tools of Government, Strategy, Education, Integration, Skill, ON-SHORE, Infrastru
ource, Enterprise, Economic Stimulus, NATIONAL TECHNOLOGY INITIATIVE, Challenge, Opportunity, Expertise, Se
vernment, Strategy, Education, Integration, Skill, On-Shore, Infrastructure, National Resource, Enterprise, Economic Stimulus, N
ogy Initiative, Challenge, OPPORTUNITY, Expertise, Security, Tools of Government, Strategy, Education, Integration, Skill,
rastructure, National Resource, Enterprise, Economic Stimulus, National Technology Initiative, Challenge, Opportunity, Expertise,
overnment, Strategy, EDUCATION, Integration, Skill, On-Shore, Infrastructure, NATIONAL RESOURCE, Enterprise,
nulus, National Technology Initiative, Challenge, Opportunity, Expertise, Security, Tools of Government, Strategy, Education, Int
Shore, Infrastructure, National Resource, Enterprise, ECONOMIC STIMULUS, National Technology Initiative, Challenge, (

White Papers On:

Securing America's Future:
Achieving U.S. Technology
Independence and Job Growth

Understanding the Challenge

George D. Schindler
President, CGI Federal

Responding to the Challenge

Lester M. Salamon
Director, Center for Civil Society Studies
Johns Hopkins University

September 2008

About the CGI Initiative for Collaborative Government

The CGI Initiative for Collaborative Government is a joint public policy project of CGI in partnership with leading academic institutions. It was launched in January 2008. The initiative's mission is to analyze models of government's collaboration with the private and nonprofit sectors in order to identify best practices in using collaboration to achieve mission results.

Government today partners with the private and nonprofit sectors to accomplish a broad range of mission-related and administrative functions. The question is not whether collaboration will occur, but rather how agencies will collaborate most effectively while retaining strategic alignment, control, and accountability. The CGI Initiative for Collaborative Government is focused on helping the government answer this challenge.

To this end, the initiative published two 2008 research papers with George Mason University, the founding partner with CGI. The initiative expanded later in 2008 to include research in partnership with the Johns Hopkins Center for Civil Society Studies and the University of Maryland Center for Public Policy and Private Enterprise.

The CGI Initiative published three reports in 2008 with an additional five projects planned for publication in 2009. In addition, in 2008, the CGI Initiative hosted a series of three seminars entitled: "Collaborative Government: An Effective Tool for Government Executives." These events provided

public sector, private sector, and nonprofit leaders a forum for discussing mission challenges and potential collaborative solutions. A full listing of the CGI Initiative's 2009 research and events agenda and access to published 2008 reports and the executive summaries of seminar discussions is available at www.collaborativegov.org.

To find out more about the initiative:

CGI Initiative for Collaborative Government

12601 Fair Lakes Circle, Suite 729
Fairfax, VA 22033

Phone: (703) 227-4959

E-mail: info@collaborativegov.org

Website: www.collaborativegov.org

Reproduction of this publication is permitted with appropriate citation of the "CGI Initiative for Collaborative Government" and the authors. This publication cannot be reproduced for commercial purposes. Entire contents © 2008 by CGI Group Inc. All rights reserved.

TABLE OF CONTENTS

SECURING AMERICA’S FUTURE: UNDERSTANDING THE CHALLENGE	1
<i>by George D. Schindler</i>	
The Challenges.....	1
The Opportunity	2
The Strategy	4
Author Profile	5
SECURING AMERICA’S FUTURE: RESPONDING TO THE CHALLENGE	7
<i>by Lester M. Salamon</i>	
Introduction	7
Proposal: The National Technology Initiative	7
The Four Gaps	8
Filling the Gaps: Applying the Tools of Government	10
Filling the Infrastructure Gap.....	10
Filling the Skill Gap	12
Filling the Enterprise Gap.....	12
Filling the Integration Gap.....	12
Toward a National Technology Initiative.....	18
Key Action Steps	18
Conclusion	19
Appendix.....	21
Acknowledgments.....	25
Author Profile	26

SECURING AMERICA'S FUTURE: UNDERSTANDING THE CHALLENGE

*by George D. Schindler
President, CGI Federal*

America's leaders today face critical challenges to stimulate jobs in hard-hit U.S. communities, fight the war on terrorism, and increase U.S. talent and economic competitiveness. An opportunity exists to apply a multi-faceted strategy to expand information technology (IT) capacity and to create jobs on-shore to accelerate solutions that span these diverse challenges.

The Challenges

New, high-quality U.S. jobs needed in rural communities

Americans, particularly in rural communities, are struggling with ever-deepening job losses in the agricultural, manufacturing, mining, and automotive industries. Many rural communities also have suffered job losses as a result of military base closures. These communities are in dire need of an infusion of lasting, high-quality job opportunities—especially “core” jobs that spark local economic growth.

At the same time, workers in rural communities must transform their skills in order to possess the expertise required for high-skill jobs currently going unfilled in the United States. High-quality opportunities exist for those who can close this skill gap. U.S. IT companies average an ongoing inventory of 470 job openings for skilled positions, while technology companies focused on defense specifically average more than 1,200, according to the National Foundation for American Policy's March 2008 report “Talent Search: Job Openings and the Need for Skilled Labor in the U.S.

Economy.” Among companies in the S&P 500, there are more than 140,000 skilled job openings.

Further complicating the challenge is that Americans face competition from foreign nations with compelling cost structures. For example, in its April 2007 report on “Trends in Indian IT Services Pricing,” Forrester Research indicates that IT labor costs in India can be a third of on-shore rates. The challenge for the United States is to successfully compete with these lower-cost overseas environments.

Many rural communities also must overcome a broadband connectivity gap—once workers are trained with the right skills, they must be able to connect to the modern marketplace via broadband. The Federal Communications Commission (FCC), the Small Business Administration (SBA), and the Wireless Communications Association International concur that broadband investments stimulate jobs. Without broadband connectivity, potential rural talent pools remain unconnected to the national economic engine.

As a result, these rural communities lack access to high-quality job opportunities and they are left out of the equation in solving IT challenges faced by the U.S. government and businesses. Programs such as the FCC's Universal Service Fund and the U.S. Department of Agriculture's Rural Development Broadband Program focus on closing the broadband gap. Unfortunately, the evidence suggests that we may not be keeping pace in meeting this challenge. A January 2008 EDUCAUSE study, “A Blueprint for Big Broadband,” showed that the United States fell from third to 20th

place, based on broadband usage measurements from 1999 to 2006.

New domestic IT solutions needed to reduce risk exposure, increase security

At the same time as rural America faces the challenge of transforming its economy and workforce to embrace high-skill IT job opportunities, the federal government is challenged to fight the global war on terrorism, protect

the homeland, and securely apply the latest technology. "Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future" (edited by the National Academy of Sciences [NAS] and published in 2007) acknowledges that the United States has built and grown its leadership in science and engineering by embracing students and researchers from around the globe. This book, as well as the 2007 NAS publication "Science and Security in a Post 9/11 World: A Report Based on Regional Discussions Between the Science and Security Communities," recommends that the U.S. move swiftly to build up a domestic IT talent pool required to deliver highly secure military and counterterrorism IT solutions compliant with U.S. security policies.

The U.S. government and businesses also are struggling to manage security risk in a world where the global delivery of IT services is a reality. The U.S. market for IT goods and services has dropped from 40% of the global market in 2003 to 33% in just five years, according to Forrester Research's "Global IT 2008 Market Outlook." Simply stated, increasing the expertise and delivery capacity

RESPONDING TO ECONOMIC AND SECURITY CHALLENGES BY STIMULATING U.S. IT JOBS

As rural communities face ever-deepening job losses, leading U.S. businesses, particularly technology firms, are struggling to fill openings. At the same time, more domestic IT employees are needed to reduce risks from the increasing use of off-shore IT delivery.

The United States faces both an imperative and an opportunity to meet these intersecting challenges.

- Bring lasting, high-quality jobs to rural communities.
- Help American workers transform their skills.
- Fill the broadband connectivity gap.
- Improve the security posture by managing sensitive IT solutions and infrastructure in U.S. centers.

of U.S.-based IT services is necessary to reduce our national security geographic risk exposure.

In the aftermath of the 9/11 terrorist attacks, increasing attention also is being given to who is managing IT infrastructures and has access to critical individual, industry, and government data. In the September 2007 report "Mission Impact of Foreign Influence of DoD Software," the Department of Defense's Defense Science Board recommended that DoD better ensure the integrity of its

custom software by ensuring that only U.S. citizens holding security clearances develop DoD code.

The bottom line

The U.S. faces an imperative to grow domestic IT capacity as a national resource to address U.S. security challenges and to provide economic stimulus in rural areas.

The Opportunity

Grow information technology capacity to grow jobs and communities

Leaders in the United States can stimulate economic growth in rural communities, reduce the nation's overseas IT risk exposure, and build up the U.S. labor base to fill IT jobs required to meet military and homeland security needs by actively growing domestic IT capacity as a national resource. For example, CGI is actively investing in U.S.-based technology centers to foster this economic and security transformation. The results

achieved by CGI's Southwest Virginia Center of Excellence demonstrate that the United States can realistically achieve the outcomes described below.

Deliver lasting economic growth to rural communities by accelerating domestic IT through on-shoring.

CGI's Southwest Virginia Center of Excellence is transforming economic conditions in Lebanon, Virginia, a community that once defined its economic vitality by the coal-mining and agriculture sectors. The region experienced a 20% loss in jobs over the decade beginning in the mid-1990s. The coal-mining industry alone, which included three of the top 20 local businesses, suffered a nearly 30% loss of jobs. In December 2007, the CGI center moved into a new 42,000-square-foot facility that houses 235 CGI software developers, analysts, and consultants, with a forecast to exceed 300 jobs by the end of 2008. These jobs are projected to pay 50 to 60% more than the average Russell County income in 2006, and they come with access to affordable health insurance. According to a 2005 study, full capacity, then projected at 300 jobs in 2010, would generate \$68.5 million in the region, including business for both CGI and other local businesses such as hospitals, restaurants, and grocery stores.

Close the skill gap. Economic upturns, such as seen in Russell County, can result directly from government incentives that extend to educational aid, where local community colleges are engaged in helping residents re-tool their skills for the IT industry. For example, CGI worked with Southwest

GROWING TECHNOLOGY CAPACITY AS A NATIONAL RESOURCE

Actively investing in the growth and development of IT can help stimulate economic growth and improve the U.S. security posture.

CGI's own experience in investing in its Southwest Virginia technology center has received commendations from state and local government officials for providing jobs that are transforming the region's economy.

The center's success demonstrates that the United States can realistically achieve the following:

- Economic growth in rural communities
- Improved workforce skills
- Enhanced broadband connectivity
- High-quality and lower-cost IT development through U.S. on-shore centers

For more information on CGI's efforts in Southwest Virginia, see Darrene Hackler's report, "Creating Jobs in America: Case Studies in Local Economic Development," published by the CGI Initiative for Collaborative Government.

Virginia Community College to develop a "Fast Track" program, targeting individuals with at least two-year degrees, basic computer skills, and aptitudes and interests in computer careers. Now expanded to two other community colleges, the program covers core IT skills such as introductory design and database concepts, with progression through UNIX, C++1, Java, SQL, and other programming languages. More than 62% of Fast Track graduates are either working for CGI or in the domestic IT industry, with many others now interviewing.

Close the broadband connectivity gap. In the 1990s, the Russell County

region recognized that telecommunications was key to its vision of how to attract 21st century economic development. The region began to seek federal and state assistance to finance the deployment of the type of network that many IT companies require before selecting a location, ultimately securing \$1.6 million from the U.S. Department of Commerce's Economic Development Administration. That investment was augmented with a \$710,600 grant from the Virginia Tobacco Indemnification and Community Revitalization Commission, which is aiding in the transformation of former tobacco communities. The resulting 51-mile fiber-optic backbone that serves Lebanon and Russell County is the result of cooperative efforts between Bristol Virginia Utilities and the Cumberland Plateau Planning District Commission.

Deliver IT services to locations in the U.S. and worldwide from rural locations with high quality and accountability. Technology is a mature resource. The BRIC nations (frequent outsourcing destinations of Brazil, Russia, India, and China) leveraged core business, application, and management processes to build their IT capabilities. Today, U.S. business and government can apply these same processes to enable high-quality, secure IT in any U.S. community, including rural communities especially hard hit by the evolving economy. For example, CGI is modeling the software application development and maintenance services performed in its Southwest Virginia Center of Excellence after similar centers located in rural Canada and India that follow standard IT processes proven to deliver high-quality software.

Deliver IT at competitive prices. While off-shoring is often deployed for highest cost savings, the economics to keep business within U.S. borders is becoming more competitive. In its July 2007 report “Lower Cost Domestic Sourcing: A Niche Opportunity for the U.S.,” the Information Technology Association of America noted that where off-shore outsourcing may generate cost savings of 20–40% for applications-related projects compared to Tier 1 U.S. IT hubs, domestic sourcing in mid-sized cities and rural areas often can generate 30% savings over the same locations, such as Silicon Valley, due to lower real estate and labor costs.

The Strategy

Leverage government tools to accelerate growth of jobs and to expand U.S. IT capacity

The United States faces serious challenges to economic growth and national security stemming from the globalization of IT. There are now clear opportunities to meet these challenges

by leveraging numerous “tools of government” to develop domestic IT expertise and jobs, as CGI’s experience in Southwest Virginia demonstrates. These tools can be blended and applied strategically to simultaneously enhance national security and fuel long-term economic growth through IT innovation and leadership, while retaining openness to leveraging foreign IT talent.

To help frame possible actions for the next Administration, CGI commissioned Dr. Lester Salamon to outline key economic and industry incentive tools available to government and recommend how those tools can be applied effectively to build information technology capacity as a national resource and to create jobs in hard-hit communities. His paper, “Responding to the Challenge,” is presented in this volume.

CGI also commissioned a report by Darrene L. Hackler, Associate Professor at George Mason University, to analyze examples of successful regional economic development in the U.S. The Hackler report, “Creating Jobs in America: Case Studies in Local Economic Development,” highlights the drivers of local economic development in the U.S., and offers recommendations for federal, state, local, and regional governments to stimulate job creation. The Hackler report also documents excellent examples of local organizing forces that can be used as models for Dr. Salamon’s recommendation, contained in this volume, to create local network managers and packagers for local information technology center job growth initiatives.

The two White Papers presented in this volume and the Hackler report all aim to provide public officials with practical, actionable advice on the economic development and information technology challenges facing the United States. They were prepared to provide government leaders across the nation with useful recommendations they can act on to accelerate U.S. economic development and enhance America’s security posture.

Author Profile



George D. Schindler

George D. Schindler

is president of CGI Federal. In 2006, Mr. Schindler was appointed president of the wholly owned subsidiary of CGI. As president, Mr. Schindler has operational responsibility for CGI's business with the civilian, defense, and intelligence sectors of

the U.S. federal government. In 2007, Mr. Schindler became a member of the CGI Management Committee.

Prior to his appointment as head of CGI Federal, Mr. Schindler was the U.S. lead of the Banking and Investment Industry Group, CGI's largest line of business. As a senior vice president, he also had overall responsibility for managing CGI's operations in the Greater New York region.

Prior to joining CGI, he was a vice president with American Management Systems Inc., where he held various management and consulting positions in both the government and commercial sector business groups.

Mr. Schindler is currently a board member of the federal division of the Information Technology Association of America and of the Professional Services Council. He holds a Bachelor of Science degree in computer science from Purdue University.

SECURING AMERICA'S FUTURE: RESPONDING TO THE CHALLENGE

by Dr. Lester M. Salamon
Director, Center for Civil Society Studies
Johns Hopkins University

Introduction

Communities throughout America are confronting a serious mismatch between the skills and facilities their citizens need to remain competitive in a global job market and the ones that are currently available to them. As a consequence, the past two decades have witnessed a significant outsourcing not simply of low-skill production jobs but also of high-quality, skilled jobs in industries such as information technology to workers in far-off lands, leaving many Americans trapped without quality employment opportunities in declining rural and central city communities.

While this situation would be a cause for concern under any circumstances, it has become a matter of special urgency in light of the security issues posed by having critical national intelligence and business information handled by overseas sources.

In George Schindler's paper, "Understanding the Challenge," he recommends a strategy of growing IT capacity as a national resource in disadvantaged rural and urban communities in order to address this significant challenge, a strategy sometimes referred to as "on-shoring." This paper seeks to take this recommendation to the next step by outlining an action plan for implementing such a strategy and identifying the "tools of government" that might usefully be mustered for such an effort.

NATIONAL TECHNOLOGY INITIATIVE KEY ACTION STEPS

Action One: Designate a National Technology Administration.

Action Two: Undertake a review of relevant existing grant, loan, tax expenditure, voucher, and set-aside programs.

Action Three: Establish a National Technology Initiative Grant Program.

Action Four: Establish a cabinet-level National Technology Initiative Council.

Proposal: The National Technology Initiative

More specifically, this paper recommends the creation of a *National Technology Initiative (NTI)* to promote the development of skilled technology-oriented jobs in disadvantaged American communities. Fortunately,

many of the building blocks for such an initiative already exist. What is needed is to forge them into a more coherent and targeted strategy. While this initiative could embrace a variety of technologies—e.g., "green" technologies and biotechnologies—we focus here on information technologies in view of the special security risks that failure to develop adequate domestic capability in this area poses.

More concretely, this initiative would aim to foster at least a dozen economically competitive centers of information technology (IT) in disadvantaged rural and urban areas of the United States over the next 10 years, with similar objectives possible in other technology areas. To accomplish this, it proposes the mobilization of existing talent, resources, and tools to build up America's domestic IT capability much as NASA mobilized U.S. resources to win the space race.

Underlying this approach are three critical considerations:

- A serious effort to foster competitive information technology capabilities within the United States will require the joint action of a number of critical partners—the federal government, state and local governments, the private sector, educators, potential technology workers, and investors;
- To mobilize these various actors, an assortment of different tools will be needed; and
- Programs embodying many of these tools are already in existence, but they are so scattered and diffused that they are difficult to assemble without some more coherent integrating effort.

In the balance of this paper we examine the implications of these three considerations for the operation of the proposed National Technology Initiative.

The Four Gaps

At the heart of the proposed National Technology Initiative is the realization that multiple actors will need to be mobilized to gain traction on the significant technology mismatch that our country faces.

The reason for this is quite simple: multiple barriers now stand in the way of creating information and other technology businesses within the United States that can compete effectively with overseas locations. Overcoming these various barriers will require the involvement of a variety of actors, both public and private. In the information technology arena, for example, at least four such barriers must be addressed:

The infrastructure gap. To be economically competitive with overseas sites, new information technology locations in the United States will likely need to be developed in historically underdeveloped rural and central city areas where wage levels even for technology-related jobs are typically 20–30% lower than in IT hot spots like California's Silicon Valley. However,

these areas often lack the infrastructure of broadband connectivity needed to support modern IT businesses. A critical prerequisite for the kind of National Technology Initiative proposed here will therefore be to upgrade the technology infrastructure in these areas much as the Rural Electrification Administration did in electrifying rural America for modern agricultural production 70 years ago. Closing these infrastructure gaps will require the joint action, however, of state and local governments, fiber-optic companies, regulatory authorities, and the U.S. federal government.

The skill gap. To create viable new information technology businesses in less developed regions of the United States, skilled personnel must be made available. The skills required to be competitive in this field are quite sophisticated, requiring specialized training. For example, international standards such as the Capability Maturity Model Integration (CMMI) system have been developed to ensure that IT businesses produce consistently high-quality results. To create a workforce capable of meeting such standards, intensive training will be required. Fortunately, the payoffs for such training will be significant, but these payoffs will require significant up-front investment. Achieving this investment and organizing the training, however, will require the joint action of governments at all levels, local community colleges and training centers, and innovative businesses.

The enterprise gap. Ultimately, the creation of viable IT businesses in less developed regions of the United States will require the active involvement of the business sector itself. Because other countries have taken the lead in developing attractive options for IT outsourcing by investing in infrastructure and skill development, U.S. businesses have understandably been obliged to take advantage of these options to remain viable in highly competitive global markets. To attract these businesses to U.S.-based investments, special incentives will be needed to offset the

disadvantages these domestic sites currently impose. Here again, joint action by governments, investors, and businesses will be needed.

The integration gap. Fortunately, as will become clear in the following section, a dizzying array of programs embodying a wide variety of tools is already potentially available to promote the goal of stimulating competitive information technology businesses in underdeveloped regions of the U.S. Few of these tools are specifically targeted on this particular purpose, however. What is more, the various programs and tools are scattered among a plethora of agencies and are consequently difficult to assemble in support of priority national objectives. This makes the creation of integrative mechanisms one of the highest priorities for gaining the full advantage of the promise these programs and tools hold for the strategy being proposed here.

Filling the Gaps: Applying the Tools of Government

To mobilize the array of actors needed to fill these gaps, a wide variety of incentives and tools of action will be needed. Governments at all levels, as well as other sectors, have critical roles to play.

Fortunately, governments in this country have developed a wide assortment of tools through which to deliver such inducements and encouragements. By assembling a targeted suite of such tools, it should be possible to mobilize the set of actors and actions needed to promote viable IT and other technology businesses in less developed regions. Among the tools likely to be especially important in the IT area are:

- **Tax expenditures**, which are provisions in tax laws that encourage certain behavior by individuals or corporations by deferring, reducing, or eliminating certain tax obligations.
- **Grants**, which are payments made from a donor government to other levels of government or to an individual or organization to stimulate or support a public objective.
- **Procurement set-asides**, which are provisions in law or regulation stipulating preferential treatment for particular classes of firms in the issuance of government procurement contracts.
- **Loans**, which are payments made to recipients with the expectation of repayment.
- **Vouchers**, which are subsidies that provide purchasing power to individuals for particular sets of goods or services.

The key features, advantages, and disadvantages of each tool are presented in the Appendix to this paper.

How can these tools be deployed to promote the development of competitive information technology capability in disadvantaged U.S. regions? Fortunately, a number of programs embodying these tools already exist. What is more, many of them are at least potentially available, either as-is or with minor modifications, to support the kind of domestic IT promotion initiative under consideration here, while others can serve as models of the kinds of applications that could usefully be applied to the IT field. In this section, we identify some of these tools and programs with an eye to suggesting some of the building blocks that a new Administration might already have available, or be able to reshape, to construct a workable IT promotion strategy.

Filling the Infrastructure Gap

Grants are probably the tool of choice for filling the infrastructure gaps that exist in the information technology area. This is so because infrastructure investments typically require the participation of state and local governments, and rural state and local governments are typically hard-pressed for cash and have limited bonded indebtedness capability. At the same time, tax and loan tools can be effective, and are already in existence.

Some of the existing major tools and programs potentially available to assist in filling the infrastructure gap are presented in Table I.

Table I: Tools to Fill the Infrastructure Gap

Grants

Grant programs already in existence that could be mobilized in support of improving the infrastructure needed to facilitate the development of competitive information technology centers in rural or other disadvantaged areas include the following:

- **Department of Commerce/Economic Development Administration (EDA) Public Works and Economic Development Program.** This program provides project grants to expand and upgrade infrastructure and facilities to generate or retain long-term private sector jobs and investments, attract private sector capital, and promote regional competitiveness in regions experiencing economic distress. Grants typically require a 50% funding match and are accepted and reviewed on a rolling basis.
- **Department of Housing and Urban Development Community Development Block Grant Program (Rural Component).** This program competitively awards grants for capacity building at the state and local level for rural housing and economic development and to support innovative housing and economic development activities in rural areas.
- **Federal Communications Commission Universal Service Program.** This program provides assistance to promote the availability of telecommunications services in rural areas. Among other things, this program offers financial assistance to provide affordable access to telecommunications services to schools and libraries in rural and economically disadvantaged areas, to enhance access to advanced telecommunications and information services for health care providers in rural areas, and to subsidize the costs of telephone installation and service for low-income consumers.
- **Department of Housing and Urban Development Enterprise Zone Program.** This program provides flexible assistance for infrastructure improvements designed to promote job development in lagging urban and rural communities.

Loans

The following loan and loan guarantee programs are potentially available to address the information technology infrastructure gap in disadvantaged areas:

- **Department of Agriculture Rural Economic Development Loans.** This program is designed to “increase economic opportunity and improve the quality of life for rural residents.” Since 2001 more than \$91 billion has been invested in equity and technical assistance to finance growth in a number of areas, including business development and technology infrastructure.
- **Department of Agriculture Distance Learning and Telemedicine (DLT) Program.** This program, part of the Rural Utilities Service, supports efforts at creating distance learning opportunities and improved medical service in rural areas. The program’s heavy reliance on technology (loan money can be used for telecommunications, computer networks, and related advanced technologies) makes it ideal to expand to include support for rural IT industries. In FY 2007, DLT loan/grant combinations totaled \$35.9 million and benefited 11 states.
- **Department of Agriculture Rural Development Telecommunications Program.** This program, part of the Rural Utilities Service, sponsors a Broadband Access Loan Program providing funds for broadband service facility acquisition and improvement. Since its establishment in 2002, this program has approved 70 loans in 40 states totaling over \$1.27 billion.

In February 2008, the USDA developed the “Broadband Opportunities for Rural America” web site. The site combines the resources of the USDA and the FCC and packages them in one place.

Tax Expenditures

Tax expenditures have been used at the federal, state, and local levels to fill infrastructure gaps in a number of other fields. The following programs could be adapted to the information technology infrastructure field:

- **The Alternative Fuel Infrastructure Tax Credit.** This program provides tax credits for up to 30% of the cost of installing alternative fuels systems in commercial enterprises.
- **The Short-Line Railroad Rail Improvements Tax Credit.** This program offers tax credits of up to 50 percent of the cost of improvements in short-line railroad track.
- **The State of Hawaii Technology Infrastructure Renovation Tax Credit.** This program provides building owners a 4 percent income tax credit for investments to improve telecommunications connectivity and other technology improvements to their buildings. The federal government could follow Hawaii’s lead, at least in disadvantaged areas where special efforts are needed to stimulate telecommunications infrastructure investments.

Filling the Skill Gap

Historically, efforts to improve the skill levels of Americans took the form of grants to colleges and universities and to nonprofit organizations for skill training. In recent decades, however, government efforts in this area have shifted substantially to other tools—mostly loan guarantees, vouchers, and tax expenditures. Although most of the available programs do not particularly target information technology workers, at least some do and others could. Nevertheless, the programs are quite diffuse, making it difficult to package them for a targeted purpose.

Rural areas are at a disadvantage when it comes to using these new tools because most of them are consumer-side subsidies that assume that training capabilities exist and potential students merely need resources with which to access them. In the information technology field, however, this is frequently not the case. Some adjustment of the programs may therefore be necessary.

A particular problem with the loan guarantee tool is that the procedure it uses to qualify education vendors disqualifies distance learning programs from eligibility for federal loan support, yet these are often the only sources of training available in rural areas. This underlines the need to take special steps to fill the skill gap for information technology businesses in rural areas.

Some of the existing major tools and programs potentially available to assist in filling the skill gap are presented in Table II on pages 14-15.

Filling the Enterprise Gap

Because of America's free enterprise tradition, direct support to enterprises is limited to special circumstances. Information technology enterprises have generally not been singled out for such support. However, such support could be justified for firms building information technology capability

in disadvantaged areas. Several existing examples illustrate the kinds of tools that could be used for this purpose. Generally, they take the form of loans, tax expenditures, and contract set-asides, though grant/contract support also is possible.

Some of the existing major tools and programs potentially available to assist in filling the enterprise gap are presented in Table III on pages 16-17.

Filling the Integration Gap

While a substantial array of tools is at least potentially available to address the infrastructure, skill, and enterprise gaps that stand in the way of creating a viable information technology capability in disadvantaged areas, the same is not true of the implements available to address the integration gap. However, there are several federal grant programs that could serve this goal in part. These include:

- **Department of Commerce/National Institute of Standards and Technology Manufacturing Extension Partnership.** This program provides support to centers led by nonprofit, university, or state-based organizations to offer customized technical assistance to manufacturers. This program supports 59 centers spread broadly throughout the country.
- **Department of Commerce/Economic Development Administration University Center Program.** This program supports university economic development centers that offer advice to public and private sector organizations regarding economic development possibilities.
- **Department of Commerce/Economic Development Administration Local Development District Program.** This program provides support for local economic development agencies offering technical assistance for local economic development in distressed areas.

- **Department of Labor/Employment and Training Administration WIRED Initiative.**

This program supports local efforts to develop integrated approaches combining training and economic development approaches in lagging areas.

But the above integrating mechanisms are themselves diffused, with no clear lead responsibility and no coherent strategy.

In the absence of effective coordination at the federal level, a number of states have taken the lead in trying to assemble the needed programs and resources themselves. Examples here include:

- **State of Missouri Contract with Onshore, Inc.**

Onshore, Inc. specializes in the development of on-shoring initiatives in information technology and other areas.

- **State of Virginia/Russell County, Virginia Development of a Regional IT Center.**

CGI, in cooperation with Virginia's economic development and workforce training authorities, helped create a regional information technology center.

These are promising initiatives that point the way toward the kind of integrated effort that is needed. But they are also seriously disadvantaged by the lack of a counterpart effort at the federal level that could run interference for the local integrators and provide needed financial and technical support.

Table II: Tools to Fill the Skill Gap

Loan Programs

Loans have become the tool of choice for government support to higher education in the United States. The basic rationale appears to be that education increases student earnings. Students should therefore be in a position to repay the investment made in them over time as their earnings increase. Loan programs put the choice into the hands of the student. At the same time, loan programs leave students with heavy loan obligations, a particular burden for rural residents because the job opportunities allowing students to pay off their loans are far less plentiful, creating incentives for students to move to urban locations. Major federal loan programs include:

- **Stafford loan guarantee program.** These loans are issued by commercial banks and guaranteed by the federal government. Students pay interest of 6.7 percent and repayment normally starts 6 months after graduation. These loans can be subsidized or unsubsidized. The subsidized loans are available to students that meet income eligibility requirements and relieve students from payment of interest on their loans while they are in school. Loans are typically in the range of \$3,500 per year.
- **Perkins direct loan program.** These loans use funds that the government raises directly. The government can therefore pass the benefits on to students in the form of lower interest costs (since the government can borrow more cheaply than can commercial banks). Educational institutions administer these loans for the government.
- **Secondary market.** In order to give financial institutions added incentives to participate in the student loan guarantee programs, the federal government established a secondary market, the Student Loan Mortgage Corporation, or Sallie Mae, to purchase student loan paper from banks and thus allow banks to originate new loans. Sallie Mae raises its capital through the sale of bonds implicitly backed by a federal guarantee.
- **Loan forgiveness.** Because college student loans create an enormous financial burden on graduating students, discouraging them from pursuing some valued professions (e.g., working for the public sector), Congress recently enacted the College Cost Reduction Act of 2007, which provides loan forgiveness to workers who are still repaying federal student loans after 10 years of employment in the public sector. While this act does not now include rural IT workers among those qualified to receive loan forgiveness, this might be one added idea to build on for the Information Technology Initiative.

Promoters of student loan forgiveness for information technology workers might usefully take a page from a portion of the student loan forgiveness program aimed at teachers. This provision offers loan forgiveness totaling up to \$4,000 per year to students who intend to teach in a public or private elementary or secondary school that serves students from low-income families. As part of the eligibility process, however, recipients must sign a TEACH Grant "Agreement to Serve." Under this agreement, if recipients do not complete the required teaching service, they will be required to repay the grants as a Federal Direct Unsubsidized Stafford Loan, with interest charged from the date of each TEACH Grant disbursement.

Tax Expenditures

Recent years have seen a significant increase in the use of the tax expenditure tool to finance education and skill development. As noted, tax expenditures have great political advantages in an era of tax cuts, but they provide limited help to families with little or no tax liabilities. One way to overcome this feature is to make them "refundable." Major tax expenditures available for education or training include the following:

- **The Federal Hope Scholarship Tax Credit.** This program provides a direct tax credit of up to \$1,650 per year for each eligible dependent for up to two years of postsecondary education. The Hope program provided \$4.6 billion in education benefits in FY 2006.
- **The Federal Lifetime Learning Tax Credit.** This program provides income tax credits of up to \$2,000 per year per family for skills-upgrading expenses they incur. In FY 2006, the Lifetime Learning Tax Credit provided \$4.7 billion of educational aid.
- **The Student Loan Interest Deduction.** This program offers students deductions from their taxable income for interest they pay on their student loans.
- **Tuition and Fees Tax Deduction.** The Tuition and Fees Tax Deduction allows taxpayers to deduct up to \$4,000 in tuition and fees required for enrollment or attendance at an eligible postsecondary institution from their taxable income prior to computing their tax obligations. As a deduction rather than a credit, it delivers less financial benefit and provides less benefit the lower the taxpayer's income and tax rate.

Table II: Tools to Fill the Skill Gap (continued)

Vouchers

Major federal voucher programs include:

- **Pell "Grant."** In view of the difficulties faced by disadvantaged students in affording higher education solely on the basis of loans, the federal government also has in place a voucher program providing cash assistance to eligible low-income students. Grants are in the vicinity of \$4,000 and can be used to pay for postsecondary educational expenses such as tuition, room and board, and books at eligible institutions. The amount received depends on the student's cost of attendance, expected family contribution, and enrollment status. In the 2006-2007 school year, 5.2 million students received Pell Grant awards totaling \$12.9 billion.
- **The SMART "Grant."** The national Science and Mathematics Access to Retain Talent (SMART) Grants Program was created as part of the Higher Education Reconciliation Act of 2006 and is targeted at low-income science, math, and technology students. Eligible students can receive up to \$4,000 for their third and fourth years of study (in addition to any Pell Grant awards). In 2006, \$310 million in aid was available through this program and 80,000 grants were made. In 2008, \$260 million in aid was available, and 79,000 grants were made.

The SMART Grant mechanism could be used to channel earmarked funds to rural information technology students taking part in information technology initiatives. To increase the prospects for encouraging rural Information and Communication Technology development, educational vouchers may need to be extended to two-year colleges. This could increase the difficulty of ensuring that the student is committed to the discipline or the rural localities, but this could be addressed with the penalty feature of the TEACH grant as outlined earlier.

- **The "individual training account" feature of the Workforce Investment Act.** Under the Workforce Training Action Grant Program, some states have created "workforce training vouchers." These vouchers provide funds to individuals to create "individual training accounts." They then use these accounts to purchase training from various approved vendors.

Grants

The Employment and Training Administration (ETA) of the U.S. Department of Labor manages a number of grant programs providing assistance to states and localities for training of various populations: adults, displaced workers, youth. Principal programs here include:

- **Workforce Investment Act.** The Workforce Investment Act has created a system of state boards to organize training activities for displaced or disadvantaged workers and a body of grant money to finance the training. States have used these funds to underwrite state Workforce Investment Boards, which in turn have formulated a variety of strategies for pursuing skill upgrading for disadvantaged workers.
- **Department of Labor/Employment and Training Administration WIRED Initiative.** This program is designed to support the development of regional, integrated approaches to workforce and economic development and education. The ultimate goal of WIRED is to expand employment and advancement opportunities for American workers and catalyze the creation of high-skill and high-wage jobs. The initiative provides regions with funding, ongoing technical assistance, and support from a group of experts to implement a transformational approach to their workforce and economic development systems at the regional level. ETA designated the first set of 13 First Generation WIRED Regions in January 2006 and awarded them \$15 million over three years to revitalize their local economy. Two subsequent sets of regions have since been designated.
- **Department of Labor/Employment and Training Administration Technology-Based Learning (TBL) Initiative.** This \$10 million grant program is designed to expand the vital role of technology-based learning in helping workers quickly acquire the training and skills they need to be successful in today's global economy, and thereby increase the nation's economic competitiveness and growth. Eligible recipients are public, private for-profit, and nonprofit organizations, including educational institutions and registered apprenticeship sponsors. Partnership with the publicly funded workforce investment system is required.

Table III: Tools to Fill the Enterprise Gap

Procurement Set-Asides

A considerable number of set-asides currently exist in federal procurement laws and regulations as well as in the procurement laws and regulations of states and localities. Although only one that has been identified to date specifically targets firms developing domestic IT capability in disadvantaged areas, this tool represents a promising avenue for helping to kick-start a domestic IT industry in disadvantaged regions. Taken together, the federal set-asides alone generated \$140.7 billion of contracts to various types of targeted firms. A 5 or 10 percent set-aside for federal IT purchases would create a sizable initial market for such firms and help them generate private capital. The key would be to find a suitable metric with which to define the firms that would qualify for such a set-aside.

Examples of existing set-asides that can be used as models for incentivizing IT investment in disadvantaged areas include the following:

- **The Small Business Act.** This Act requires that federal contract offices give small businesses “the maximum practicable opportunity to participate in the performance of federal government contracts.” A legislative directive to the President set a government-wide goal of at least 23 percent of the total value of the federal government’s prime contract awards to be awarded to small businesses each fiscal year.
- **The Small Disadvantaged Business Program.** This program offers special procurement advantages to small firms headed by members of historically disadvantaged population groups.
- **The 8(a) Program.** This program provides contract set-asides for minority-owned firms.
- **The Historically Underutilized Business Zone (HUBZone) Program.** This program, established by the HUBZone Act of 1997 (P.L. 105-135, December 2, 2007), sets a federal mandate requiring 3 percent of each agency’s procurement dollars to be set aside for firms in Historically Underutilized Business Zones, which could include disadvantaged rural areas targeted for IT development. The General Services Administration administers a government-wide Information Technology contract set-aside for HUBZone companies.
- **The Service-Disabled Veteran-Owned Business and the Veteran-Owned Business set-asides.** These two programs provide set-asides for veterans.
- **State of California 5 percent bidding preference.** The state program provides a set-aside for certified small businesses.

Direct and Guaranteed Loans

Direct and guaranteed loans include:

- **Small Business Administration 7(a) loan guarantees.** This program guarantees loans to small businesses by commercial banks. This is the major federal support program for small businesses in the country and generates millions of dollars of capital for small business development.
- **Small Business Administration New Markets Venture Capital Program.** This program makes equity capital available to small businesses in low-income areas and may be especially helpful in rural areas seeking to develop information technology enterprises. The funding was appropriated to guarantee bonds issued by community development investment institutions.
- **The Rural Economic Development Loans and Grants (REDLG).** This program provides direct zero-interest loans to rural electric and telecommunication utilities. These utility companies use the funds to provide financing for business and community development projects. In FY 2003, the funding level was \$15 million for loans. Applicants must prove, among other things, that there is job creation potential and that projects are sustainable and suitable to the area.
- **Department of Agriculture Intermediary Relending Loan Program.** This program provides funding to community development or regional planning groups that then re-lend the money to local businesses. The loans must be used to start new businesses, expand existing ones, or create or retain jobs. In March 2008, the Department disbursed over \$7.5 million to 10 states for this program. For example, the South Dakota Economic Development Finance Authority in Pierre, S.D., received a \$750,000 loan to enable it to provide small businesses in communities of less than 25,000 people with financing at reasonable rates and terms.
- **The Overseas Private Investment Corporation.** This agency provides major loan guarantees for U.S. businesses establishing facilities in targeted areas overseas. Conceivably, a counterpart “On-Shore Private Investment Corporation” loan program could be established to provide major loan guarantees for U.S. companies establishing high-priority information technology facilities in priority regions in the U.S.
- **State revolving loan funds.** Numerous states (e.g., Kentucky, Missouri, Hawaii, and Washington State) operate revolving loan funds to stimulate economic development in disadvantaged regions.

Table III: Tools to Fill the Enterprise Gap (continued)

Tax Expenditures

A variety of special tax expenditure programs offer tax relief to firms to stimulate expansion in lagging regions. These are especially prominent at the state and local level, though a number exist at the federal level as well. Included are the following:

- **Federal New Market Tax Credit.** Tax credits are provided to investors in community development finance institutions, which in turn invest in community-based economic development and in low-income housing.
- **Federal Research Tax Credit.** Tax credits are provided for business investments in technological discoveries leading to new or improved business activities of the taxpayer.
- **Alternative Fuel Production Credit.** Federal tax credits are provided to businesses developing and producing alternative fuels, such as bio-fuels, to help make them commercially viable. This same concept could be applied to information technology firms in disadvantaged areas.
- **State High Technology Sales and Use Tax Deferral Program.** A number of states (e.g., Washington) have adopted a High Technology Sales and Use Tax Deferral Program to stimulate growth in certain high-technology industries. A sales and use tax deferral is often allowed for research and development and pilot-scale manufacturing in the areas of advanced computing, advanced materials, biotechnology, electronic-device technology, and environmental technology.
- **Rural County Sales/Use Tax Deferrals Program.** This program provides tax deferrals from state sales/use taxes for manufacturing, computer-related businesses, research and development laboratories, and commercial testing facilities (excluding light and power businesses) locating in rural counties, Community Empowerment Zones (CEZ), or a county containing a CEZ. The sales and/or use taxes on qualified construction and equipment costs for such businesses located in these specific geographic areas are waived when all program requirements have been met and verified.
- **State of Washington Distressed Area Business and Occupation (B&O) Tax Credit for New Employees.** This program provides a \$2,000 credit for each new qualified employment position with annual wages and benefits of \$40,000 or less; or a credit of \$4,000 for each new employment position with wages and benefits over \$40,000 annually. The credit is taken against the B&O tax for each new employment position filled and maintained by qualified businesses located in eligible areas.
- **Angel Investment Tax Credit (States of New Mexico and Ohio).** This program provides tax credits of up to \$25,000 for state residents who make investments in state companies that are engaged in high-technology research or manufacturing.
- **State of Maine Tax Increment Financing.** This program is a local financing tool that permits a municipality to use some or all of the new property taxes that result from an investment project within a designated district to assist in that project's expenses.

Grants

Though somewhat less common, a variety of grant programs are also available to provide support to enterprises in special circumstances. Included here are the following:

- **Department of Agriculture Rural Business-Cooperative Service.** This program provides grant assistance for business start-up costs, expansion, technical assistance, advanced telecommunication services, and job training in rural areas.
- **Department of Commerce/Economic Development Administration Trade Adjustment Assistance (TAA) for Firms.** This program pays for half the cost of consultants or industry-specific experts for projects that improve a manufacturer's competitiveness. Support is also available (via matching funds) to manufacturers affected adversely by trade agreements for a range of activities, including marketing, training, IT, manufacturing, and quality improvement.
- **Department of Commerce/National Institute of Standards and Technology Manufacturing Extension Partnership (MEP).** This program provides matching funds for nonprofit, university-based, or state-based organizations offering customized and direct assistance to manufacturers to help them identify opportunities for growth and encourage technology deployment.
- **The State of Kentucky Enterprise Fund.** This program provides early stage venture capital for emerging technology companies.
- **Department of Defense/Defense Advanced Research Projects Agency (DARPA).** This federal program provides grants and contracts for the development and demonstration of new technologies applicable to military uses. DARPA's Information Processing Techniques Office (IPTO) and its Strategic Technology Office (STO) have programs related to information technology that might offer support to IT center of excellence businesses.

Toward a National Technology Initiative

To take full advantage of the potentials the existing programs and tools offer to promote the development of a network of information technology centers in historically underdeveloped regions, a new Administration could usefully follow the lead of local initiatives and establish a counterpart National Technology Initiative. Such an initiative would pull together existing resources and focus federal efforts more coherently around this key strategic objective. What is more, this initiative could help structure federal efforts to promote not only improved information technology capability in rural areas, but also other priority technologies as well, such as “green” technologies and biotechnologies.

Key Action Steps

The new Administration should consider the following action steps to launch the National Technology Initiative.

Action One: Designate a National Technology Administration. A National Technology Administration would serve as the administrative home and promoter of this initiative and empower it to work with other federal agencies, state and local governments, educational and training institutions, private businesses, and local network packagers to promote the development of new centers of information technology, and potentially other technologies, in developing regions of the United States.

The new entity could be an existing entity, such as an administration within the National Institute of Standards and Technology or the Economic Development Administration, or it could be a new agency dedicated entirely to this mission, such as NASA or a domestic version of the Overseas Private Investment Corporation (OPIC), i.e., an “On-Shore Private Investment Corporation (OSPIC).”

Action Two: Undertake a review of relevant existing grant, loan, tax expenditure, voucher, and set-aside programs. This review would include assessing the activities identified in this paper to verify their availability to support the IT initiative under consideration here, and suggesting additional programs or modifications of the existing programs needed to promote this objective.

Modifications of existing programs might include:

- Broadened information technology infrastructure grant and loan support in disadvantaged areas that are targeted for IT centers of excellence;
- Tax incentives for investments in start-up IT ventures in these areas;
- Low-cost loans or loan guarantees to stimulate business investment in such centers;
- Enhanced Pell grant assistance to information technology workers who devote a specified period of time working in information technology centers in disadvantaged regions;

- Targeted student loan forgiveness for workers in the resulting IT firms; and
- Increased funding or legislative or administrative earmarking of existing funding in the existing programs identified above, or other programs that might be identified in this paper, for use in the IT initiative.

Action Three: Establish a National Technology Initiative Grant Program. This program, to be administered by the National Technology Administration, would be designed to support local nonprofit, for-profit, or governmental entities that agree to serve as the network managers and packagers for local information technology initiatives.

Here again, an existing program providing support to local integrators could be expanded to perform this function or a new program established. The key, however, will be to have designated funds dedicated to this function under the direct control of the technology initiative agency. This will give the agency needed clout and leveraging power. It will also help to energize and orchestrate the local partnerships among government, training institutions, and businesses that will ultimately hold the key to the success of this initiative. Experience has shown that this will not happen without active network organizers, and such organizers will need targeted resources to support their efforts.

The entities supported by this grant program will be asked to perform the following major tasks:

- Work with local governments, nonprofit organizations, and relevant private businesses to design local information technology centers of excellence in disadvantaged areas;
- Recruit state and local government agencies, training organizations, and private businesses needed to make these centers operational;

- Identify relevant programs and tools that can be utilized to support the initiative and bring these to the attention of the initiative partners;
- Organize and manage network structures to operate the resulting collaborations;
- Assist the relevant initiative partners in accessing the different programs and tools; and
- Monitor progress, promote cooperation, and resolve conflicts as they arise.

Action Four: Establish a cabinet-level National Technology Initiative Council. This cabinet-level Council would be chaired by the President's chief domestic policy advisor and include the administrator of the proposed National Technology Administration, the deputy administrators of the Small Business Administration and the General Services Administration, and the deputy secretaries of the Departments of Labor, Education, Agriculture, and Commerce. The purpose of this Council will be to ensure the cooperation of the affected federal agencies in making the various tools operated by these agencies available to support the local technology initiatives.

Conclusion

An important opportunity exists at the present time to solve two of our country's serious challenges:

- Enhancing the security of our information resources; and
- Providing quality jobs to residents in disadvantaged regions.

Fortunately, a broad array of tools that could potentially be highly useful in seizing this opportunity is already in place, but these tools are embodied in a large number of different programs scattered across numerous agencies and therefore difficult to mobilize in support of this critical strategic goal in the absence of strong leadership and a clear sense of common purpose.

To take advantage of this opportunity, a coherent strategy is needed as well as a way to stimulate, and respond more coherently to, local initiatives.

The National Technology Initiative and its associated collection of new and existing tools are designed to do just this. It offers a unique opportunity for a new Administration to achieve technology independence and security for the country while growing jobs for U.S. workers.

Appendix

Understanding the Tools of Government*

Tax Expenditures

Key Features

Tax expenditures are provisions in tax laws that encourage certain behavior by individuals or corporations by deferring, reducing, or eliminating certain tax obligations. The tax expenditure tool alleviates the tax burden by allowing taxpayers to keep and spend money that would otherwise be owed to the government.

The tax burden in question can be federal or state income taxes, state sales taxes, local property taxes, or specialized use taxes. Tax expenditures can operate by reducing the income or sales against which taxes are levied or by offering a direct credit against tax obligations.

Tax expenditures can also be made fully or partially “refundable” so that they deliver benefits even to individuals or corporations with limited or non-existent tax obligations.

Advantages

- They are non-coercive, providing incentives for favored action but leaving considerable choice to those targeted.
- They are relatively automatic, making use of existing government taxing structures rather

than requiring new administrative processes and institutions.

- They are politically viable since they can be sold as “tax cuts” rather than spending increases.

Disadvantages

- They make the tax system more complicated.
- They put tax authorities in the middle of often difficult substantive policy decisions for which they are not trained.
- They can create windfall benefits for actions that firms or individuals would have taken anyway.
- Their benefits are often not very salient or not very substantial, especially for firms or individuals with limited or highly complicated tax obligations. As a result, individual taxpayers, especially low-income ones, are often not aware of these benefits and corporations are often not interested in them.

Grants

Key Features

Grants are payments made from a donor government to a recipient individual or organization to stimulate or support a public objective. The federal government alone operates well over 900 grant programs. About two-thirds of these are directed at state and local governments and the

* For a more comprehensive analysis of these various tools, see: Lester M. Salamon, editor; *The Tools of Government: A Guide to the New Governance* (New York: Oxford University Press, 2002).

balance provide aid to individuals or nonprofit organizations.

Grant programs vary along a number of dimensions:

- The degree of specificity of the purposes supported.
- The eligible recipients (e.g., states, local governments, nonprofit organizations).
- The mechanism used to distribute the funds (i.e., on the basis of automatic formulas or on the basis of applications reviewed by funding agencies).
- The control mechanisms used to ensure that eligible purposes are served (e.g., planning requirements, matching requirements, reporting requirements, pass-through requirements).

Advantages

- They enlist state and local governments and thus mobilize the talents and resources of these governmental entities.
- They permit the adaptation of federal purposes to local realities.
- They foster innovation and competition among jurisdictions.
- They avoid political and constitutional resistance to federal involvement in state and local affairs by leaving substantial responsibilities, and substantial discretion, in state and local hands.
- They even out disparities among states and regions and tap the superior revenue-raising capability of the federal government for important national objectives.

Disadvantages

- Grants are highly fragmented and difficult to manage. There are many small, often similar,

but differently operated and narrowly defined categorical grants, resulting in inefficiency and duplication of effort.

- Grant funding formulas are frequently politically determined, which can lead to too wide a dispersal of available funds for truly effective results.
- Local jurisdictions often use grant funds for purposes that differ from the original federal objectives, especially when grant objectives are drawn too broadly.
- Alliances often form among the program specialists and external actors involved in particular grant programs at federal, state, and local levels, making it difficult for elected officials to achieve coordination among the different programs.

Procurement Set-Asides

Key Features

Procurement set-asides are provisions in law or regulation stipulating preferential treatment for particular classes of firms in the issuance of government procurement contracts. Set-asides can reserve acquisitions exclusively for particular types of firms (e.g., small businesses or veteran-owned businesses) or simply provide special consideration of the designated type of firm in the procurement process.

Advantages

- They use an existing mechanism to promote important public purposes at no, or limited, additional cost to the public sector.
- They utilize the existing government procurement system to advance valid public purposes while still fulfilling the central objective of the procurement.

Disadvantages

- Set-asides complicate the procurement process, making it necessary to clear a number of hurdles unrelated to the purchase at issue and extending the process.
- Set-asides make it more difficult for the government to purchase the best products at the most reasonable price and lead to criticisms of the procurement process as being inefficient.
- Set-asides are often difficult to administer, making it important to implement safeguards to prevent contractors from taking advantage of socioeconomic criteria to boost their apparent competitiveness in procurement decisions.
- Set-asides can potentially lead to windfall benefits because of the difficulty of specifying the basis for the set-aside.

Loans

Key Features

Loans are payments made to recipients with the expectation of repayment. Two broad types of loan tools are available:

- Direct loans, where a government agency extends the loan directly using funds raised through Treasury borrowing.
- Guaranteed loans, where the government relies on the commercial banking system to extend the loans using private funds and the government offers a full or partial guarantee of the loan to protect the financial institution against loss in the event of default.

Loan programs can also vary along a number of other dimensions:

- Eligible recipients (individuals, companies, local governments or quasi-governmental bodies meeting specified geographic, income, or other eligibility criteria).

- Equity participation or collateral requirements on the part of the borrowers.
- Equity participation on the part of lenders in the case of loan guarantees.
- Default criteria.
- Loan terms (fees, maximum interest rates, maximum loan amounts, maturities).
- Conditions for loan forgiveness.

Advantages

- Both direct and guaranteed loans are cost-effective for the government since the borrowed funds are typically paid back (with allowance for defaults).
- Loan programs allow government to provide needed credit for recipients or purposes that commercial sources are unwilling to support, or unwilling to support at an affordable cost, without the government guarantee (e.g., investments in high-risk areas or to small businesses).
- Direct loans are generally less costly since the government can issue bonds and raise capital at a lower interest rate than can private banks and thus pass along the lower rates to borrowers. However, private bankers generally oppose direct government loan programs, fearing that they put government in competition with the private banking system.
- Guaranteed loans leverage the capital and skills of the private banking industry and are generally highly preferred by banks, but are more costly to the government and potential lenders.

Disadvantages

- Guaranteed loans put the government at the mercy of the commercial banking system in deciding who receives guaranteed credit because the commercial banks essentially

originate the guaranteed loans. This can lead to “moral hazard” (extending credit to non-creditworthy borrowers) or “windfall profits” if the banks get government guarantees for creditworthy borrowers.

- Government credit agencies frequently have difficulty monitoring the lending programs they authorize.
- Loans are sometimes insufficient incentives to trigger the action that the government is trying to stimulate.
- Loan guarantee programs often involve guarantee fees that boost the cost of borrowing.
- Banks sometimes find it undesirable to participate in programs that are too narrowly drawn because of the start-up costs of learning the program requirements.

Vouchers

Key Features

Vouchers are subsidies that provide purchasing power to individuals for particular sets of goods or services. Vouchers differ from grants in that grants typically direct funds to the providers of goods or services (e.g., states, local governments, nonprofit organizations) whereas vouchers make assistance available to the recipients of goods or services and allow them to choose among providers. Well-known voucher programs include Medicare, Medicaid, and food stamps. Like other tools, vouchers can vary along a number of dimensions:

- Eligible recipients (defined in terms of income, age, family status, geographic residence, or other factors).
- Eligible uses.
- Eligible providers (certification processes).
- Eligible costs for covered goods or services.

Advantages

- They provide choice to consumers and thus, at least in theory, create incentives for greater efficiency and responsiveness on the part of producers.
- They can be targeted at specific goods and services and thus relieve political concerns about the leakage of benefits for non-priority items.
- Because they are targeted at specific goods and benefits, they pick up crucial political support from the providers of these goods and benefits (e.g., grocers and farmers support food stamps but might not support general income assistance to the poor).

Disadvantages

- They assume that consumers are informed about the choices they face and can therefore make sound decisions in the market, an assumption that simply does not hold in many situations (e.g., the markets for health care and education).
- They assume there is an adequate supply of the subsidized good or service, also an assumption that is often not the case, with the result that vouchers can lead to enormous cost escalation.
- It is often difficult for government to set the appropriate price for the services it is financing. Various pricing systems have had to be developed to deal with the problems in programs such as Medicare and low-income housing.
- Unqualified suppliers are sometimes attracted into the markets subsidized by vouchers (e.g., in Medicaid and the higher education voucher programs). Complex certification procedures are required to avoid this.

Acknowledgments

This paper was prepared by Dr. Lester M. Salamon, director of the Center for Civil Society Studies at Johns Hopkins University, with support from CGI, Inc. Dr. Salamon is the editor of *The Tools of Government: A Guide to the New Governance* (Oxford University Press, 2002), from which portions of this report were drawn.

Dr. Salamon was assisted in the preparation of this report by Benjamin Nathanson, Inuki Pantin, Corissa Kiyon, and Sara Yonker. He also wishes to acknowledge the useful comments and suggestions provided by Andrew McLauchlin of CGI. The opinions and conclusions presented here are those of Dr. Salamon alone, however, and do not necessarily reflect the views of any individuals or organizations with which he is affiliated or that have supported his work.

Author Profile



Lester M. Salamon

Lester M. Salamon is a leading expert on alternative tools of government action and on the nonprofit sector in the U.S. and around the world. He is currently a professor at the Johns Hopkins University, where he is also director of the Center for Civil Society Studies. He previously served as

the director of the Center for Governance and Management Research at the Urban Institute in Washington, D.C., and as deputy associate director of the U.S. Office of Management and Budget. Before that he taught at Duke, Vanderbilt, and Harvard universities and at Tougaloo College in Mississippi.

Dr. Salamon holds a Ph.D. in government from Harvard University and a B.A. in economics and policy studies from Princeton University. He has written or edited more than 20 books, and his articles have appeared in *Foreign Affairs*, *The New York Times*, *Voluntas*, and numerous other publications. His recent books include: *The Tools of Government: A Guide to the New Governance* (Oxford University Press, 2002); *The State of Nonprofit America* (Brookings Institution Press, 2003); and *Global Civil Society: Dimensions of the Nonprofit Sector* (Kumarian Press, 2004).

About CGI

Founded in 1976, CGI is a leading information technology and business process services provider with 27,000 professionals operating in more than 100 offices worldwide. In the public sector, CGI is a major partner to federal, state, provincial, local and municipal governments in the U.S., Canada, Europe and Australia.

CGI has helped more than 100 U.S. federal agencies improve program and back-office operations, allowing them to better fulfill their core missions. Our federal track record includes enhancing citizen information via Websites such as Medicare.gov; enabling the Environmental Protection Agency to better assess global warming,

water quality, and pollution; helping more than 50 agencies achieve IT infrastructure economies of scale through managed services; and modernizing financial management operations for more than 100 agencies.

Focused on helping government continually adapt and evolve, CGI created the Initiative for Collaborative Government, which analyzes models of collaboration between government and the private and nonprofit sectors, and provides recommendations on how government can best leverage these models to maximize mission results.

About Johns Hopkins University

The **Johns Hopkins Center for Civil Society Studies** seeks to improve understanding and the effective functioning of not-for-profit, philanthropic, or “civil society” organizations in the United States and throughout the world in order to enhance the contribution these organizations can make to democracy and the quality of human life. The center is part of the Johns Hopkins Institute for

Policy Studies and carries out its work through a combination of research, training, and information-sharing both domestically and internationally.

For more information about the Center for Civil Society Studies, please visit its Website: www.jhu.edu/~ccss/.



Initiative for
Collaborative Government

Partnering for Mission Results

www.collaborativegov.org