PACESETTER

News from the Office of Technology Policy ■ August 1999

Secretary Daley Releases New Report on the IT Work Force

On June 30, 1999, Commerce Secretary William M. Daley released a new Office of Technology Policy (OTP) report which finds that the demand for highly skilled information technology (IT) workers is strong and growing.

"We absolutely must have a well-trained, highly-skilled work force if America is to compete in the global economy in the years to come," said Daley. "America's continued leadership will depend on how quickly we can assemble an army of home-grown technology workers."

The report, "The Digital Work Force: Building Infotech Skills at the Speed of Innovation," captures the results of Commerce's town meetings around the country, describes the demand and supply trends for core IT occupations, discusses the business environment and its impact on the IT labor market, and outlines several steps key stakeholders could take to address the challenge of developing a world-class work force.

Key Findings

Key findings of the report include:

■ More than 1.3 million new workers will be required to meet the projected demand for core IT workers in the United States between 1996 and 2006. About 1,134,000 workers will be needed to fill newly created jobs and approximately 240,000 will be needed to replace workers who are leaving these fields.

■ The projected demand will have a significant regional impact. California, Texas and Virginia are projected to have the largest number of core IT workers in 2006. These three states also lead the country in the average annual number of core IT job openings between 1996 and 2006.

■ The computer and data processing services (CDPS) industry -- including many companies that focus on the development of software and services or IT projects under contract for other firms -- is projected to employ nearly two out of every five core IT workers (39.3 %) in 2006.

■ IT labor markets are complex and dynamic. Supply and demand characteristics vary by industry segment, by IT occupation, and by specific skills.

■ Secretary William M. Daley releases "The Digital Work Force" report at the National Press Club in Washington, DC.

Kelly Carnes Speaks at Silicon Valley E-Business Conference and Expo

On June 8 business, government and industry leaders converged on San Jose, California to participate in a three day technology fair and conversation on a wide range of E-business issues. Sponsored in part by *Business Week*, *Information Week*

■ E-business panelists discuss their presentations: From left to right: Jeff Richards, Executive Director, the Internet Alliance; Dan Kostenbauder, General Tax Counsel, Hewlett-Packard; Gregory Dalton, Associate Editor, *Information Week* ; Kelly Carnes, Deputy Assistant Secretary for Technology Policy, Department of Commerce.

and industry giants such as, Hewlett Packard, IBM, Intel, and ORACLE, Silicon Valley hosted several hundred participants interested in the growth of business on the Internet.

Deputy Assistant Secretary Kelly Carnes spoke on a panel entitled, "The Government and Electronic Business: Promoter, Spoiler or No-Show?" How the government will promote, tax and regulate the Internet continues to be a hotly debated topic.

Short product life cycles, and the variety of software and hardware products and their applications, together with the differing business requirements of different industry

■ Commerce Secretary Daley and Education Secretary Richard Riley share a laugh during Acting Under Secretary of Technology Bachula's remarks.

sectors, have created demand for workers with various combinations of IT skills, experience, and industry knowledge -- expressed often by employers as needing "the right person with the right skills at the right time." Time-sensitive competitive pressures and the need for employees with various combinations of technical skills, business skills, and hands-on experience have led many employers, especially those for whom IT is their core business, to pursue "buy" decisions in this labor market rather than "make" decisions (to hire, then train for the task).

■ There is no single path to prepare a worker for a core IT job. Most get their education from four-year colleges. Other paths include two-year degree-granting community colleges, special university/community college one-year programs designed to upgrade the skills of current IT workers, private sector certification programs, in-house company training, computer user groups, Internet forums, and company-sponsored help sites. Two-thirds of all workers in core IT occupations hold a bachelor's-level degree or higher; 26 percent have less than a four-year degree; and six percent have a high school diploma or less. Of those with degrees, 46 percent have IT degrees, minors or second majors; 86 percent have a degree in a science or engineering discipline.

Key Recommendations

The resounding conclusion from our nationwide dialogue is that there is no "silver bullet" solution to the IT work force challenge. Rather, the answer lies in many stakeholders undertaking a wide range of initiatives, both large and small. Most of the suggestions for key stakeholders presented in this report provide actions well within the reach of individual stakeholders in the business, government and education communities.

Some of the recommendations outlined in the report are:

■ Government and the private sector should work together to support and develop national information and advertising campaigns to improve the image of the technical professions and communicate the portfolio of skills needed to thrive in the new economy.

■ Governments should consider incentives to increase the number of qualified science and technology teachers in the K-12 grades.

■ Governments should review government supported training programs

and contract training providers to ensure they are aligned with employer needs, growing career areas, and job markets in which they operate.

■ Businesses should form consortia or collaborate in other ways to reduce the cost and risk of training. Businesses - acting alone or in partnership with education, government and other stakeholders - should assess IT training needs, develop curricula, train current or prospective employees, and develop ways to help employees get experience in applying the technical skills they acquire through training.

■ Businesses should tap into non-traditional labor pools, including older workers, mid-career scientists and engineers, recent college graduates trained in non-IT disciplines, and women and minorities.

■ Private sector, universities and community colleges should partner together to improve curricula quality, timeliness and value, and develop programs that meet employers' changing IT education and training needs.

■ Universities and community colleges should find much faster ways to upgrade curricula through regular surveys of skills needs, ongoing dialogue with IT business leaders and technical professionals and more monitoring of the business environment and technological trends.

■ Universities and community colleges should develop partnerships between science and technology departments, and business schools to provide business majors and MBAs with technical skills, and offer people graduating in non-IT fields some courses in IT.

Copies of the report are available for download from:
http://www.ta.doc.gov/reports
or can be requested by calling:
(202) 482-3037. ■

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Speaking for the Administration, here is an excerpt of Carnes' presentation:

"E-Commerce is the new gold rush. It's exciting—almost magical—how E-Commerce is changing everything around us. More importantly, the economic transformation being wrought by E-commerce gives us a fresh chance to do things right in terms of public policy, education and training, and so many other things that can affect the quality of our daily lives.

E-Commerce is a priority of Secretary Daley. It is a high priority of President Clinton and Vice President Gore. We know we cannot do our job without staying in close touch with your needs and concerns. If you have any messages for Washington, now's your chance to provide them. Let's talk about some underlying principles which guide the Clinton Administration's approach to E-commerce.

'Promoter, Spoiler or No Show?' is an apt title. Right up front, I want to confess to you that the Administration is responsible, as the title of our presentation suggests, for two of the three things suggested by our panel's title.

In the first place, we are certainly ardent promoters of E-commerce. Virtually every federal agency is active in appropriate area of E-commerce, because we recognize the incredible potential of the digital economy for improving the government's service delivery.

Second, we are just as proud to be a 'non-player' where and when there seems to be little or no need for government intrusion into the marketplace. This role is all the more important given the recent experience of other nations, where governments have tried to dictate 'appropriate technologies' or even control access to the Web, and then wondering why their infant E-commerce industries are languishing.

Finally, some of you may think that government is in fact a 'spoiler,' and that is especially important to discuss with you and our panelists. When it comes to E-commerce, hopefully we have learned to listen, lead where there is a clear role—AND to follow—AND to get out of the way.

President Clinton issued our central policy directive on E-commerce, 'A Framework for Global Electronic Commerce,' on July 1, 1997. The President identified the following policy principles:

1 the private sector should lead;

2 government should avoid undue restrictions on electronic commerce;

3 where governmental involvement is needed, its aim should be to support and enforce a predictable, minimalist, consistent and simple legal environment for commerce;

4 governments should recognize the unique qualities of the Internet;

5 electronic commerce over the Internet should be facilitated on a global basis

Carnes discussed barriers to E-commerce growth and challenges for the future that include taxation, digital signatures, copyright protection, privacy, encryption, domain name management, and market access and concluded by saying the Administration recognizes that it is the private sector which is largely responsible for the commercialization of the Internet. We are committed to minimizing untimely, inconsistent, and ill-conceived regulation of this precious asset. We are also committed to maintaining our responsibilities in other areas of E-commerce. The digital economy and E-commerce in particular are now reaching a critical mass thanks to good old American ingenuity and entrepreneurship and the minimalist yet supportive approach of the government.

We cannot kill the goose that lays the golden egg for short-sighted revenue goals, or out of a desire to somehow control a process which already transcends local, state, federal and international boundaries. Moreover, we know that worldwide there are potentially thousands of government entities which would love to cook that goose as well. And we cannot allow that to happen.

I urge you to join with us in finding mutually advantageous solutions to E-commerce policy issues. We welcome your involvement and input." ■

OTP Partners with Hollywood to Challenge "Geek" Stereotype

At the press conference for the "The Digital Work Force," Secretary Daley also announced a new partnership between the Office of Technology Policy (OTP) and Women in Film, a non-profit organization with members from the entertainment industry located in Hollywood, Calif., to do a public service campaign in 2000. The goal of the campaign is to dispel the negative "geek" or "nerd" stereotype of technical workers and encourage teens to pursue careers in science and technology.
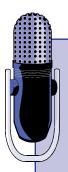
The campaign will include two public service announcements (PSAs), a poster, and other informational materials which will reach at least a million teenagers in 2000. ■

Something to Talk About!
In the Next PACESETTER

■ OTP will chair the American delegation to the 17th Meeting of the Aisa-Pacific Economic Council (APEC) Industrial Science and Technology Working Group in Seattle, Washington in August.

■ OTP will be issuing a series of reports on international issues including an update of our 1997 report, "Globalizing Industrial Research and Development."

Nominations for the 2000 National Medal of Technology are being accepted from now until December 1, 1999. The Medal is the nation's highest honor for technological innovation and is awarded annually by the President of the United States. Nominations are accepted for individuals, teams, companies, or organizations.
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