Socioeconomic, Education, Workforce Issues (SEW)

Impacts of PITAC 1999 Report

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Socioeconomic, Education, Workforce Issues (SEW) – What PITAC Said in 1999

- "To realize the promise of the new technologies, we must invest in long-term, large-scale research to identify, understand, anticipate, and address" issues arising from the pace of change and the new interactions between people and IT, such as:
  - Policy issues (e.g., privacy, security, intellectual property)
  - Equity and access
  - Workforce development

Overarching recommendation

- Expand Federal initiatives and government-university-industry partnerships to increase IT literacy, education, and access

Specific recommendations

- Expand Federal research into policy issues arising from IT
- Fund IT research on socioeconomic issues
- Expand participation of underrepresented minorities and women in computer and IT careers

Socioeconomic, Education, Workforce Issues (SEW) – PITAC 1999 Recommendations (continued)

- Create programs to remove barriers to high-bandwidth connectivity posed by geographic location, size, and ethnic history of research, educational institutions, and communities

- Accelerate and expand education in IT at all levels – K-12, higher education, and lifelong learning

- Strengthen the use of IT in education

- Increase funding for SEW R&D

Funding Increases for Socioeconomic Research ($ millions)					
(SEW FY 1999 base=$30M)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
PITAC recommendation	+30 (=60)	+40 (=70)	+70	+90	+100
SEW funding increases	+15 (=45)	+35 (=65)			

Overarching – FY 2000-2001

- Program Component Area (PCA) redefined, renamed:
  - Formerly "Education, Training, and Human Resources" (ETHR)
  - Renamed "Social, Economic, and Workforce Implications of IT & IT Workforce Development" (SEW) to reflect breadth of SEW issues

- SEW PCA (includes NSF, NASA, DOE, NIH) became part of the formal budget crosscut. (ETHR had been only an informal participant in the crosscut.)

- NSF launched new multidisciplinary Information Technology Research (ITR) program with a SEW research component that expanded NSF's ongoing SEW portfolio

NSF research on socioeconomic implications of IT

- ITR's "People and Social Groups Interacting with Computers and Infrastructure" area funds projects in:
  - IT and education (research to create new knowledge on IT uses)
  - Social and economic implications of IT (such as the global digital economy; IT and work life; value systems in IT design, deployment, and consequences; cyber-citizenship; information privacy and intellectual property)
  - Infrastructure extensions to expand access to IT in communities and at smaller colleges and universities
  - IT workforce – issues related to attracting and retaining a strong workforce
  - Universal access (enabling people to use IT regardless of age or physical limitation)
  - Universal participation (motivations and barriers in the use of IT)
  - IT in the social and behavioral sciences

Education & workforce-related R&D

- **NSF**:
  - Barriers to participation of minorities and women in IT careers
  - Methods to increase IT literacy and skills
  - Learning theory and practice with individuals and groups
  - Integration of innovative IT tools and methods in learning environments
  - Use of digital libraries in education
  - IT applications in workforce training
  - Increased financial support for graduate students

- **NIH:** Programs and fellowships in advanced IT training in bioinformatics for health professionals

- **NASA**: Technologies and methods for applying scientific data in science education, and innovative IT strategies for advanced collaboration and training in technical work settings

- **DOE:** Graduate computer science fellowships at DOE laboratories

Socioeconomic, Education, Workforce Issues (SEW) – Federal Responses (continued)

- The SEW PCA is developing a research needs white paper and is planning the first in a series of annual national workshops on SEW research issues, to be held later this year

- Budget increments provided by Congress in FY 2000-FY 2001 enabled IT R&D agencies to support more graduate students in computer science and related disciplines

  - PITAC calculated that its recommended five-year funding increases for IT R&D would produce 2,500 new Ph.D. academic researchers

  - Based on IT R&D funding to date, it can be estimated that the IT R&D Program has produced about 600 of these new researchers

- NSF is emphasizing innovative IT in K-12 education in its new FY 2002 "Learning in the 21st Century" program

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