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* Nobel Laureate

February 3, 2006

[Sent to all Senate sponsors of innovation legislation.]

Dear Member of Congress:

We commend your sponsorship and decisive leadership of the vital PACE legislation. As scientists, educators, and practitioners in technology and telecommunications, we, too, are deeply concerned about the alarm signals raised by the National Academies' "Gathering Storm" report and the Council on Competitiveness' "Innovate America" findings.

We have an important suggestion to strengthen the PACE legislation to provide teachers and students with new and highly effective tools to aid Math and Science learning. We have been instrumental in supporting the proposal for a Digital Opportunity Investment Trust (DO IT), modeled on the NSF, which would do for R&D to advance education, workforce training, and lifelong learning what the NSF does for science, the NIH for health, and DARPA for national defense. The DO IT legislation would provide a "venture capital" fund for vitally needed R&D to create new learning tools using advanced broadband technologies. Math and Science teaching and training would be made more effective, efficient and captivating for many more students through the use of new technology applications such as highly interactive virtual reality simulations and one-on-one tutoring applications that are proven to give students a more conceptual and practical comprehension of abstract subjects. While such advanced technology applications have transformed our communications, business, national defense, and entertainment sectors, high quality research and content designed for educational purposes is not being done at an adequate level to ensure our future in the digital age.

Congress already requested and funded the national R&D road map for the future of learning that is the centerpiece of the 2003 Digital Promise Report to Congress entitled "A Proposal to Transform Learning and Training for the 21st Century." The result of that Report, following hearings in the Senate and House, is the Digital Opportunity Investment Trust Act (S. 1023 and HR 2512), sponsored by Senators Dodd, Snowe, Durbin and Burns, and Representatives Regula, Markey, Gillmor, Holt, Wolf, Boucher and others.

The DO IT legislation calls for the Trust to be funded by **the interest only** from a portion of future revenues earned from Congressionally mandated sales of the publicly owned telecommunications spectrum (the corpus of the Trust remains an asset within the Treasury). Its precedents are the historic Land Grant Colleges Act and Northwest

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Ordinance, which helped fund American public education and higher education with revenues from the nation's frontier land, the major publicly-owned resource of the past, comparable to the publicly owned spectrum of today. Once each century, in the midst of deep national crisis, Congress passed landmark legislation to advance education and address the needs of our economy: Northwest Ordinance (1787), Land Grant Colleges Act (1862), and GI Bill (1944). DO IT, as part of the PACE bill, would be the 21st Century equivalent of those farsighted Congressional initiatives.

The PACE legislation sets out a plan to revitalize American R&D, and DO IT fills a gaping hole in the American R&D education and training portfolio. Today, total R&D spending in the U.S. for education and training is approximately \$280 million, by contrast with the \$5 billion a year for NSF and \$27 billion for NIH. And most of that \$280 million of educational R&D money is spent in the Department of Defense, where it is doing great things to advance the training of American troops, but is of limited benefit to the public-at-large. Although DO IT would partner with the private sector, the private sector cannot fund an adequate level of research or sustain the return on investment required to ensure America's overall educational and economic leadership.

Last February 15, the Digital Promise Project Co-Chairs Larry Grossman and Newton N. Minow, along with Steve Bass, then head of the Nashville public television station, met in your office to brief your staff members Tom Ingram and John Grant on the DO IT bill. We'd be happy to update that briefing.

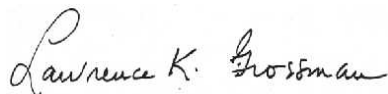
Your support would mean a great deal to our coalition. The DO IT legislation has been endorsed by the large membership of virtually every major national university, scientific, education, library, and museum organization and many corporate leaders, as well as the U.S. Conference of Mayors, the chairman of the National Governors Association, the Association of Public Television Stations, and others. It is clear that a strong consensus is building over the urgent need to modernize America's systems of education, skills training, and lifelong learning through significantly increased investment in research and development.

We urge you, as one of the nation's foremost leaders in education, to co-sponsor the DO IT legislation, and help lead DO IT forward as an integral element of the PACE initiative.

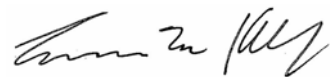
Sincerely,



Henry Kelly,
FAS President



Lawrence K. Grossman,
FAS Board Member, Co-Chair Digital Promise Project



Eamon M. Kelly,
FAS Board Member, former Chair, National Science Board

On Behalf of These Other Members of the FAS Board

**Francois J. Castaing, Lee Fikes, Richard L. Garwin, Tara O'Toole,
Kumar Patel, Arthur H. Rosenfield, Richard C. Wald
Biographies**

Francois J. Castaing is former Vice President and Executive Vice President of Vehicle Engineering at Chrysler Corporation. Mr. Castaing currently serves on the board of Exide Technologies, Amerigon, Durakon Industries and NextEnergy. He also serves on the board of FIRST in New Hampshire, and is the chairman of the New Detroit Science Center and the chairman of UCCA (University Cultural Center Association) in Detroit (MI). He is Chairman Emeritus, French American Chamber of Commerce, Michigan Chapter. Additionally, Mr. Castaing is a Society of Automotive Engineers (SAE) Fellow and a member of the United States National Academy of Engineering.

Lee Fikes was elected to the FAS Board in June 2005 to serve a three-year term. He has worked for the family business and foundation since 1967. Fikes has served on numerous non-profit boards including the executive committee of St. Mark's School of Texas, the University Medical Center, the Excellence in Education Foundation, the Dallas Arboretum, the vestry of St. Michael and All Angels Episcopal church, and Chairman of the Board of The Science Place. He received his Bachelors degree in economics from Cornell University.

Richard L. Garwin is Philip D. Reed Senior Fellow for Science and Technology at the Council on Foreign Relations, New York and IBM Fellow Emeritus at the Thomas J. Watson Research Center, Yorktown Heights, New York. Dr. Garwin is a Fellow of the American Physical Society and of the American Academy of Arts and Sciences and a member of the National Academy of Sciences. He is a long-time member of Pugwash and has served on the Pugwash Council. Dr. Garwin is co-author of many books, including his most recent, *Megawatts and Megatons: A Turning Point in the Nuclear Age?* (2001) (with Georges Charpak). He is a 2003 recipient of the National Medal of Science.

Lawrence K. Grossman is former president of NBC News and PBS, an advertising agency owner, holder of the Frank Stanton First Amendment Chair at the Kennedy School of Government, and senior fellow and visiting scholar at Columbia University. He currently serves as co-chairman of the Digital Promise Project, as a trustee of Connecticut Public Broadcasting and various nonprofit health organizations. Mr. Grossman also serves as a television columnist for Columbia Journalism Review, and as a Dupont-Columbia Journalism Award juror. He is the author of *The Electronic Republic: Reshaping Democracy in the Information Age* (1996).

Eamon Michael Kelly, Former Chair, National Science Board. President Emeritus of Tulane University and Professor in the Payson Center for International Development & Technology Transfer. Dr. Kelly is the former Chairman of both the Association of American Universities and the Satellite Working Group. His current teaching and research interests focus on the role of science and technology, especially information technology in the developing world.

Henry Kelly, Ph.D., is the President of the Federation of American Scientists (FAS). Before he joined FAS, he was Assistant Director for Technology in the White House's Office of Science and Technology for 8 years helping negotiate and implement major administration research partnerships in energy and the environment, information technology, and learning technology. These included partnerships for new automobile and truck technology, housing technology, bioprocessing technology, and information technology. He convened the President's Information Technology Advisory Committee and helped translate their advice into a large expansion and refocusing of federal information technology research. He also was instrumental in creating major federal programs in learning technology for children and adults, including an executive order accelerating the use of instructional technology for training federal civilian and military employees. Prior to his work in the White House he was a Senior Associate at the Congressional Office of Technology Assessment, Assistant Director for the Solar Energy Research Institute, and worked on the staff of the Arms Control

and Disarmament Agency. Kelly is an elected fellow of the American Physical Society, 2002 winner of the APS' Leo Szilard Lectureship Award for "promoting the use of physics for the benefit of society" and was named the biannual "Champion of Energy Efficiency" in 2000 by the American Council for an Energy Efficient Economy. He received a PhD in Physics from Harvard University and is the author of numerous books and articles on issues in science and technology policy.

Tara O'Toole, M.D., M.P.H., was elected chair of the Board of the Federation of American Scientists in 2004. She is a Board-certified internist and occupational medicine physician with clinical experience in academic settings and community health centers. Dr. O'Toole is the CEO and Director of the Center for Biosecurity at the University of Pittsburgh Medical Center, and Professor of Medicine at the University of Pittsburgh. She has served on numerous government advisory committees and bodies dealing with biodefense, including panels of the Defense Science Board; the National Academy of Engineering Committee on Combating Terrorism; and the National Academy of Sciences Working Group on Biological Weapons. She is also co-editor in chief of the journal *Biosecurity and Bioterrorism – Biodefense Strategy, Practice and Science*, and was one of the principal authors and producers of *Dark Winter*, an exercise conducted in June 2001 to alert national leaders to the dangers of bioterrorist attacks and *Atlantic Storm*, an international exercise held in January 2005. Dr. O'Toole was one of the original members of the Johns Hopkins Center for Civilian Biodefense Strategies and served as Director of the Hopkins Center from 2001-2003. She received her Bachelors degree from Vassar College, her MD from the George Washington University and a Master of Public Health degree from Johns Hopkins University. She completed a residency in internal medicine at Yale, and a fellowship in occupational and environmental medicine at Johns Hopkins University.

Kumar Patel is Professor of Physics and Astronomy, as well as Professor of Chemistry and Professor of Electrical Engineering at UCLA. In addition, Dr. Patel is a founder of Pranalytica, a medical instrumentation and communications equipment company. He is a fellow of the Institute of Electrical and Electronic Engineers, the American Physical Society, the Optical Society of America, the American Academy of Arts and Sciences, the Laser Institute of America, and the Association for Advancement of Arts and Sciences.

Arthur H. Rosenfeld received his PhD in elementary particle physics in 1954 under Nobel Laureate Enrico Fermi, with whom he co-authored "Nuclear Physics". He served as Prof. of Physics at UC, Berkeley until 1994, then as Senior Advisor at the US Dept. of Energy through 1999, and now as Commissioner at the California Energy Commission under Governor Arnold Schwarzenegger. He is presiding member of the Research, Development and Demonstration Committee and the Dynamic Pricing Committee (Ad Hoc Committee); and second member of the Energy Efficiency Committee.

Richard C. Wald, currently the Fred Friendly Professor of Media and Society at Columbia University and a consultant to ABC News. In addition, Mr. Wald is a member of the advisory board of the Knight Fellowship at Stanford University, a member of the Board of Visitors of the School of Communication at the University of Colorado, Boulder, and a member of the Board of the Correspondents Fund and the Center for Communication. A former president of NBC News, he is also the Chairman of the Board of the Columbia Daily Spectator, the Columbia College daily newspaper.