The 2004 federal budget provides $847 million for the National Nanotechnology Initiative, climbing steadily from the $422 million appropriated in 2001. Globally, government sponsored nanotechnology R&D investment increased seven-fold in the last six years, from $432 million in 1997 to roughly $3 billion in 2003. The National Science Foundation’s Mihail Roco estimates: “The worldwide annual industrial production in the nanotechnology sectors is estimated to exceed $1 trillion in 10 - 15 years from now, which would require about 2 million nanotechnology workers”

Applications: Nanotechnology enables radical material and process improvements, ushering in the next “Industrial Revolution”. Roop Mahajan, at the University of Colorado at Boulder, notes that “For the first time man can make machines and design processes that are as small and efficient as those we find in living systems.”

Nanomaterials got back to Roman times, starting with nanoparticle gold tints for glass. Varying the particle size and shape changes the optical characteristics, allowing gold tints from red to blue and all colors in between.

Carbon nanotubes, 100 times stronger than steel at one-sixth the weight, have strengthened Babolat tennis rackets since 2001. A wide range of nanoparticle based products are on the market today and in 2003 we have seen the start of a continuous stream of product introductions based on ever more sophisticated nanotechnology application.

Colorado Nano-

(Continued on page 2)
Technology Initiative:

Colorado’s unemployment rate rose to 5.2% in July. Productivity growth is outpacing GDP growth nationally, reducing the scope for employment growth in established industries. It is time for Colorado’s pioneers to move into the “next big thing.”

Small Times magazine ranks Colorado 6th in nanotechnology business density and 12th overall. Yet we have failed to attract our fair share of federal grants and are not part of the NSF’s National Nanotechnology Infrastructure Network.


The CNTI has, in its short life:

- Obtained the signatures of the presidents of the University of Colorado, Colorado School of Mines, Colorado State University, University of Northern Colorado, University of Denver, and Metro State College on a letter stating that nanotechnology research is one of their top development priorities
- Assembled over 150 people at three meetings in Boulder, Fort Collins, and Pueblo
- Established four focus groups on technology transfer, education, ethics and public policy, and asset management; and
- Met with a wide range of political, industry, and academic leaders.

The CNTI’s goal is to make Colorado the world leader in nano-science research and application for energy, structures, informatics, and biotechnology. Our mission is to work with academia, industry, and government to:

- Develop and educate a world-class nanotechnology work force, including the “gold collar” worker that will build, operate, and maintain the infrastructure
- Facilitate collaboration among Colorado’s research institutions and improve their ability to obtain federal, foundation, and corporate grants
- Speed the commercialization of our research institution’s intellectual property
- Evaluate nanotechnology’s societal implications, educate the public, and support public policy development
- Build a nanotechnology institute and start raising Colorado’s national profile and ranking.

Colorado is in a strong position to accelerate economic growth through nanoscience and nanotechnology. There are very few options that will maintain our high standard of living and beautiful environment, few options have so much long term promise. To learn more about the Colorado Nano-Technology Initiative, please visit www.coloradonano.org.

(Continued from page 1, International Sales)

mal cycler - a microfabricated device that replicates and optically tags bits of DNA resulting in anthrax detectors for mail sorting facilities. Future applications include a fast and accurate genetically based medical diagnostic tool.

- Semiconductor nanocrystals called quantum dots, that serve as fluorescent tags for tracking molecules in cells;
- Electrically conductive plastics for solar cells;
- Biothreat detectors based on proteins instead of DNA.

The National Science Foundation (NSF) has published online the Science & Engineering State Profiles: 2000-2001, a set of 52 science and engineering (S&E) profiles summarizing state-specific data on personnel and finances. Rankings and totals are given for the 50 states, Washington, D.C., and Puerto Rico, and the report includes a data source page. (For Puerto Rico, the data sources for some variables differ from those used to obtain state data; comparable data do not exist on total and industry R&D performance for Puerto Rico.)

The NSF databases used include doctoral scientists and engineers; S&E doctorates awarded, including by major S&E fields; S&E graduate students and postdoctorates; federal R&D obligations by agency and performer; total and industrial R&D expenditures; and academic R&D expenditures, including by major S&E fields.

Data from non-NSF sources include population, civilian labor force, per capita personal income, federal expenditures, public higher education expenditures, patents, small business innovation research awards, and gross state product originating in sectors such as manufacturing, agriculture, trade, government and services.

Three Microsoft Excel tables summarizing the entire report also are available on the website below.

[Source: SSTI Weekly Update]

Institute of Medicine

A new report from the Institute of Medicine identifies eight core functions that computer-based health records should be capable of performing to promote better, safer and more efficient health care delivery. The list will be used to devise a common industry standard for electronic health records that will guide the efforts of health care providers and software developers.

http://www.national-academies.org/topnews#tn0731

Stationary Fuel Cell Systems

Fuel Cell Today has just completed a survey of the small stationary fuel cell market. Results show that a total of 1,900 small stationary fuel cell systems have now been built and are in operation worldwide. This is almost four times the number of units that had been built at the time of the last survey in February 2002. The 1,900 number includes systems installed in homes and units in the 0.5 - 10 kW range that have been operated in other related small stationary applications. The survey also determined that there are now around eighty companies active in the development of complete, small stationary fuel cell systems worldwide. Most of the systems in this sector continue to use a proton exchange membrane design. (Fuel Cell Today, July 30, 2003, http://www.fuelcelltoday.com)

New Data Supports State and Local Efforts to Foster Tech-Led Economic Development, Entrepreneurship

The Department of Commerce has released two new reports on the role business incubators have in technology development strategies in the United States and overseas. Commerce’s Office of Technology Policy collaborated with the National Business Incubation Association (NBIA) and the Southern Technology Application Center (STAC) at the University of Florida to produce the studies.

The first report, “A National Benchmarking Analysis of Technology Business Incubator Performance and Practices,” prepared in cooperation with NBIA, provides entrepreneurs and state and local government officials a set of benchmarks with which to compare their efforts and increase the return on investment on business incubation.

The second study, “Business Incubation: Emerging Trends for Profitability and Economic Development in the U.S., Central Asia and the Middle East,” expands the research to the Middle East, North Africa and the Islamic countries of Central Asia, partly as a result of the tragic events of September 11, 2001, and as a result of globalization and growing international efforts to foster economic growth in transitional and developing economies. This study was prepared in cooperation with the Southern Technology Application Center.

The reports are available at www.technology.gov/reports.htm.

Biotechnology Valuations for the 21st Century

This 12-page publication by Jeffrey J. Stewart of Clinical Capital Group, is available at the Milken Institute website: www.milkeninstitute.org.

The Executive Summary states: “Biotechnology investment need not be made in a valuation vacuum. Biotech research and development (R&D) is risky, but applicable risks can be quantified more precisely now than in the past. One reason is that in the late 20th century, even greater than the uncertainties of clinical-trial outcomes, were the uncertainties of manufacturing organism-derived pharmaceuticals (biologics). Now, in the 21st century, the uncertainties associated with biologic manufacturing have largely been dispelled: biologics can be manufactured at scale and sold at profitable margins. Also critical, the success rates of biotech clinical trials, pivotal value drivers of biotech R&D, are reasonably estimable. Because of this, the value of biotech R&D projects may be estimated by incorporating these clinical-trial success rates into a traditional discounted cash flow analysis. In this policy brief, I present risk-adjusted net present value as a straightforward method of determining the value of biotech R&D assets. Because clinical-trial-stage projects are the most valuable assets of most biotech firms, risk-adjusted net present value may be used to assign value to biotech companies and to reassess company value in response to significant clinical-trial events.”
Colorado Venture Capital Funding for Q2 2003 indicates a continued upward swing, with a reported $229.5 million invested in Colorado companies. “This is a 49% increase above the $154.4 million reported in the first quarter of 2003,” said Matt Kosmicki, Technology Partner at PricewaterhouseCoopers in Denver. “The continued increase in funding during the second quarter of this year confirms a more normal distribution of investment dollars, which is encouraging news for the venture capital community in Colorado.”

A total of 18 companies representing 9 industry sectors received funding during the second quarter of 2003. Early stage companies attracted 10% ($23 million) of the total dollars invested, while expansion stage companies attracted 82.5% ($189.4).

The telecommunications sector leads the second quarter 2003 investments with a total of $176.9 million. The major contributing deal this quarter was $156 million of funding for WildBlue Communications, an Englewood-based provider of broadband multimedia communications services and Internet access. AirCell, Inc., a Louisville-based company, which provides wireless air-to-ground communications using cellular technology, received $9 million. The last time the Telecommunications sector received funding of more than $100 million was in Q1 2001 with $117.7 million.

Second quarter investments in the Software sector ranked with investments totaling $18 million, which included $12.5 million in Intelliden, Inc., a Colorado Springs company, which provides device configuration and management software for carrier networks.

The report suggests that TTOs more closely reflect the interests of the administrators than the faculty. TTOS report to the central administration, not the faculty or individual departments, and the performance measures for TTOs are often geared toward directly quantifiable items such as royalty and licensing income. The findings may raise the question for readers: can TTOs be designed in such a way to more effectively balance the interests of the administration and faculty? If so, would they achieve greater success in technology commercialization?

The authors suggest that TTOs are focusing on those inventions that require the least amount of time to get to market, most often those at lab-scale prototype, to yield royalty and licensing income (their main motivating factors). As a result, “successful” TTOs as measured by short term monetary return may discourage disclosure in inventions at the proof of concept stage which is when the “higher quality” researchers in fields such as medicine, nursing and engineering are more likely to report.

[Source: SSTI Weekly Digest, June 20, 2003]
Federal Government Lead S&E Workforce Development

“The federal Government has primary responsibility to lead the Nation in developing and implementing a coordinated, effective response to our long-term needs for science and engineering skills in the U.S. workforce in ways unlikely to be addressed by market mechanisms or interventions at the state and local levels,” concludes the National Science Board (NSB) in the draft final report of its Task Force on Nation Workforce Policies for Science and Engineering. The NSB is the governing board for the National Science Foundation.

Global competition for science and engineering talent is intensifying, the NSB finds, at the same time that the number of U.S. citizens entering the fields is likely to decline unless more is done to attract students in demographic groups traditionally unrepresented in engineering and science disciplines.

Five major policy recommendations are presented:

- The federal government must direct substantial new support to students and institutions in order to improve success in S&E study by American undergraduates from all demographic groups;
- Federal Support for research and graduate education should respond to the real economic needs of students and promote a wider range of educational options responsive to national skill needs;
- In partnership with other stakeholders, the federal government should act now to attract and retain an adequate cadre of well-qualified precollege teachers of mathematics, science and technology.
- During the current re-examination of visa and other policies concerning the mobility of scientists and engineers, it is essential that future U.S. policies strengthen the capacity of U.S. research universities to maintain their leadership in S&E education; support opportunities for U.S. students and faculty to participate in international education and research; and maintain the ability of the U.S. to attract internationally competitive researchers, faculty, and students, while accommodating national security concerns.

To support development of effective S&E workforce policies and strategies, the federal government must increase substantially its investment in research to understand the dynamics of the international S&E workforce. It also should lead efforts to build a base of information on the status of national S&E workforce needs and strategies for attracting high-ability individuals to S&E careers.

The report is available at: [source: SSTI Weekly Digest, 6/20/03]

Cheap, Renewable Hydrogen

Scientists have developed a hydrogen-making catalyst that uses cheaper materials and yields fewer contaminants than do current processes, while extracting the element from common renewable plant sources. Further, the new catalyst lies at the heart of a chemical process the authors say is a significant advance in producing alternate fuels from domestic sources.

In the June 27 issue of the journal Science, James Dumesic, John Shabaker and George Huber, of the University of Wisconsin at Madison, report developing the catalyst from nickel, tin and aluminum and using it in a process called aqueous-phase reforming (APR), which converts plant byproducts to hydrogen. The process performs as well as current methods that use precious metals such as platinum, yet runs at lower temperatures and is much cleaner.

"The APR can be used on the small scale to produce fuel for portable devices, such as cars, batteries, and military equipment," said Dumesic. "But it could also be scaled up as a hydrogen source for industrial applications, such as the production of fertilizers or the removal of sulfur from petroleum products."

The team is now collaborating with scientists at Virent Energy Systems in Wisconsin as part of a National Science Foundation (NSF) Small Business Technology Transfer (STTR) grant to develop catalysts for generating fuels from biomass.

More information is available at: [source: SSTI Weekly Digest, June 20, 2003]

Tech Incubator Performance

Citing inadequate information available to those who oversee technology incubators, yet emphasizing the incubators’ significant and measurable impact on communities, the U.S. Department of Commerce’s Technology Administration has released a study that highlights 17 of the nation’s top incubator’s. A National Benchmarking Analysis of Technology Business Incubator Performance and Practices details the role business incubators have in technology development strategies.

To determine the 17 “best-in-class” incubators out of a field of 79, NBIA researchers gathered data on employment and sales revenue growth from incubator managers. The 17 are said to constitute the top 10 programs nationally in either revenue or employment growth. These top programs offered a full array of incubator services and had a strong relationship with either a research-intensive university or medical research institution, or were located in a metropolitan area with a high concentration of technology-based companies and associated business support firms, according to the study.

A National Benchmarking Analysis of Technology Business Incubator Performance and Practices is available at: [source: SSTI Weekly Digest, June 20, 2003]

http://www.nsf.gov/od/lpa/news/03/pr0369.htm
SMALL BUSINESS DURING THE BUSINESS CYCLE
JOEL POPKIN AND COMPANY

PURPOSE
After the longest expansion in post war history, the U.S. economy has been through a recession and is struggling to return to a solid growth path. How small firms behave during the different phases of a business cycle - expansion and recession - is again a focus of policy discussion. This research separates firm size differences related to the economic cycle from differences that might be related to longer-term economic trends. It also looks at various quarterly indicators produced by small business surveys to determine what, if any, insights they provide into where small businesses are in relation to the economy business cycle.

OVERALL FINDINGS
Industries react different to changes in the business cycle. Within some industries, primarily those that produce goods, there are noticeable differences between small and large business activities related to cyclical changes. In the construction industry, small business gross domestic product (GDP) fluctuates much more than large business GDP. In the service industry there is little difference between small and large firms in response to the business cycle.

HIGHLIGHTS
The firm size relationship of GDP to the business cycle has changes over time. The study compares six expansionary periods (from the low point of a cycle to the next peak) since the late 1950s. Small business GDP declined relative to large business GDP during the earliest two expansionary periods (1958 and 1961), held about steady during the 1970s, and rose during the 1980s and 1990s. Cyclical changes affect industries differently. Construction firms are both more negatively affected by downturns and more positively affected by expansions than large construction firms.

The manufacturing and mining industries also show firm size differences related to the business cycle, especially in the non-compensation components if GDP (profits, interest payments, etc.) Large manufacturing businesses are more cyclically sensitive, in part related to large swings in corporate profits. They grow faster than small manufacturing businesses during expansions and may slip also dip lower during contractions.

The finance, insurance, and real estate industry and the trade sectors show little difference by firm size in their response to the business cycle.

Service businesses, which produce a large portion of small business GDP, are less cyclically sensitive and show a modest difference between large and small business activity over the cycle.

When the Index of Small Business Optimism produced by the National Federation of Independent Business (NFIB) is above 103, it indicates an expansionary mode for small business GDP.

ORDERING INFORMATION
The full text of this report and summaries of other studies performs under contract to the U.S. Small Business Administration’s Office of Advocacy are available on the Internet at www.sba.gov/advo/research.

IMPACT OF PUBLIC INVESTMENTS IN UNIVERSITY S&T
New university-based research efforts in biodesign, nanotechnology, embedded systems and virtual manufacturing show that Arizona has stepped forward to compete in the knowledge economy, according to a recent study by Morrison Institute for Public Policy, a unit of Arizona State University.

The Institute's 44-page report, Seeds of Prosperity: Public Investment in Science and Technology, uses the research projects that ASU initiated with voter-approved Proposition 301, proceeds from a sales tax, as a lens for understanding the value of science and technology (S&T) research to Arizona's economy. It also introduces "CAT measures" designed to assess the lasting economic value of such research for the state and region. The CAT measures are intended to help assess whether connections were made among ASU researchers and external groups, attention was attracted to ASU's research, and talent was recruited, retained or developed.

The researchers argue, "The CAT measures provide Arizona with a truly original way to evaluate the long-term economic development contribution of public investment in university research." They suggest a variety of indicators to be used for the CAT measures, including:

Connections
- University researchers on boards of companies
- Private sector participation in university lab work and events
- Joint presentations by university and private sector

Attention
- University exposure in national, state, and local media
- Hits on university research web sites
- Industry recruitment of science and technology student

Talent
- Successful hiring and retention of top research faculty
- Science and technology grad students attracted and retained
- Private sector individuals trained

ASU's projects have nearly doubled the state's investment by attracting $14 million in outside grants, according to the report. To determine whether this investment will be a long-term economic development success, Morrison Institute analysts recommend that such research initiatives be regularly and systematically assessed not only on the products they develop and the external funding they generate, but also on the CAT measures.

Seeds of Prosperity is available for download at:
http://www.asu.edu/copp/morrison/see dsoprosperity.htm
[Source: SSTI Weekly Digest 8/22/03]
NSF invites proposals for nanoscale science and engineering projects in three initiatives highlighted below. Research is sought in the following areas: biosystems at the nanoscale; nanoscale structures, novel phenomena and quantum control; nanoscale devices and system architecture; nanoscale processes in the environment; multi-phenomena theory, modeling and simulation at the nanoscale; manufacturing processes at the nanoscale; and studies on the societal and educational implications of scientific and technological advances on the nanoscale. More information is available at http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf030403

Nanoscale Interdisciplinary Research Teams (NIRT) proposals may be submitted by a single institutions consisting of a lead institution in partnership with one or more partner institutions. U.S. institutions with significant research and degree-granting education programs in disciplines normally supported by NSF are eligible to be the lead institution. NSF anticipates funding approximately 35-45 NIRT awards in FY 2004. Awards are expected $2 million. Proposals are due by October 22, 2003.

Nanoscale Exploratory Research (NER) proposals may be submitted by U.S. institutions with undergraduate and/or Ph.D. programs in disciplines usually supported by NSF. Approximately $8 million is expected to be available in FY 2004 to fund up to 60 new awards. Each NER award will be made as a nonrenewable one-year grant of up to $130,000. Proposals are due by October 22, 2003.

Nanoscale Science and Engineering Centers (NSEC) may be based at a single U.S. academic institution or may consist of a lead institution in partnership with one or more partner institutions. U.S. academic institutions with undergraduate and Ph.D. programs in disciplines normally supported by NSF are eligible to submit one preliminary proposal as the lead institution. Approximately $14.5 million is expected to be available in FY 2004 to fund 5-7 NSECs. Each award will be in the range of $1 million to $4 million per year for five years and will be eligible to compete for one five-year renewal. Cost sharing of 10 percent is required. Required preliminary proposals are due by October 22, 2003. [source: SSTI Weekly Digest]

**ENERGY RESEARCH**

In what's likely to be a key Energy Dept. priority the next few years, the agency opens competition for two hydrogen research-related programs:

1) Hydrogen Production and Delivery Research focuses on a number of specific topics dealing with the issue, including several reserved specifically for research universities.

Preliminary applications are due Sept. 4; full proposals, Dec. 19. Info: James Damm, fax 303/275-4788 (DE PS36-03GO93007); http://www.eere.energy.gov/huyrogenandfuelcells

2) Grand Challenge Grants for Basic and Applied Research in Hydrogen Storage. The focus is on hydrogen storage materials technology.

Applications are due Sept. 31. Info: http://e-center.doe.gov (DE-PS36-03GO93013); questions, Damm, fax 303/275-4788. Federal Register, 8/5p46171-2

**ENVIRONMENTAL RESEARCH**

The Environmental Protection Agency releases the last FY 2003 RFP for its Investigator-Initiated Grants. Funding priorities include

1) Impacts of Manufactured Nanomaterials on Human Health and the Environments,
2) Market Incentives for Environmental Management,
3) Environmental Statistics Research: Novel Analyses of Human Exposure Related Data,
4) Computational Toxicology and Endocrine Disruptors: Use of Systems Biology in Hazard Identification and Risk Assessment; and
5) The Role of Air Pollutants in Heart Diseases.

Application deadlines vary. Info: http://www.epa.gov/ncer. Federal Register, 8/5p46185

**CONGRESSIONAL COMMITTEES OF INTEREST TO THE FEDERAL R&D COMMUNITY**

This file is a compilation of various Congressional Committees that might be of interest to the Federal R&D community as compiled by the Washington, D.C. Liaison's office of the FLC. The file identifies the committees and their subcommittees whose jurisdiction partly focuses on R&D. We have provided the following information (where available): committee name, Web site, jurisdiction (where it focuses on R&D), Committee Chair and Ranking Minority Member, and the Majority and Minority staffs (with phone numbers). We have also included the same information for subcommittees where applicable.

[Source: Federal Lab Consortium @ http://federallabs.org]
According to analysis by the American Association for the Advancement of Science, FY 2004 federal budget for R&D will increase funding for defense and homeland security while other R&D programs see modest growth or reductions. In a revised analysis, AAAS reports that the administration request for total federal R&D funding in FY 2004 is $122.5 billion, a 4.4 percent increase over FY 2003. Most of the increase is directed to development of weapons systems in DOD and the new Department of Homeland Security (DHS). DOD could see a 7.1 percent increase to $62.8 billion with most of the increase going to the missile defense program and development of the Joint Strike Fighter. The Defense Advanced Research Projects Agency (DARPA) would see an increase to $3.0 billion while funding for other basic and applied research at DOD would decline.

Department of Energy (DOE) would see a 4.0 percent increase to $8.5 billion in FY 2004 with the entire increase going to defense activities. Other programs such as nanoscale science in the Office of Science will see increases generating offsetting declines in other areas. Funding for programs to develop next-generation efficient automobiles, e.g. fuel cells and hydrogen, will receive $1.5 billion over five years, including $272 million in R&D in FY 2004.

Department of Homeland Security (DHS) is proposed to receive R&D funding of $1.0 billion. This budget represents R&D programs transferred to DHS from Departments of Transportation, Energy and Agriculture as well as funding for the new Homeland Security Advanced Research Projects Agency (HSARPA).

After a five-year doubling of research funding, National Institutes of Health (NIH) is projected for an increase of 2.7 percent over 2003 with the largest increase targeted to the National Institute of Allergy and Infectious Diseases (NIAID). The National Science Foundation (NSF) 2004 budget request for R&D would be $4.0 billion, a 2.8 percent increase.

The FY 2004 budget would again propose to eliminate the Advanced Technology Program (ATP) and the (non-R&D) Manufacturing Extension Partnership. Similar proposal failed in 2003.

[Source: http://www.aaas.org/spp/rd/prev04p.htm - AAAS Analysis of R&D in the FY 2004 Budget-REVISED provides more detail on agency R&D funding including charts and tables. The analysis is a preview of the forthcoming AAAS Report XXVII: Research and Development FY 2004.]

**R&D Programs in the Department of Homeland Security**

Department of Homeland Security (DHS) R&D programs reside in Directorate of Science and Technology, led by Charles McQueary, Undersecretary for Science and Technology, who reports directly to the Secretary for Homeland Security (Tom Ridge). Within DHS, the proposed R&D funding level for the S&T Directorate is $866 million. While the Directorate includes R&D programs from DOD, Energy and Agriculture with funding around $521 million last year, the Directorate will also create new research capabilities to address knowledge gaps critical to homeland security. In addition, the agencies will have responsibility for all activities necessary to not only develop technology but to deploy it for use by DHS and state and local responders. The current senate funding levels are targeted to these activities:

- $45 million for university-based centers of excellence in homeland security, and fellowships for scientists and engineers from academia and industry to work within DHA;
- $60 million for R&D on antimissile devices for commercial airlines;
- $70 million for rapid prototyping activities to speed deployment of new technologies;
- $131 million for development of radiological/nuclear countermeasures;
- $244 million for the development of biological countermeasures;
- $55 million for chemical countermeasures to protect civilians;
- $10 million for protection against explosives attacks;
- $98 million for threat and vulnerability assessments especially in information technologies;
- $25 million for test and evaluation criteria for homeland defense technologies;
- $22 million for R&D on emerging threats.

In 2004, DHS will create the Homeland Security Advanced Research Projects Agency (HSARPA), modeled on DOD’s Defense Advanced Research Projects Agency (DARPA), which could have a role in most of the above research areas. HSARPA will award extramural grants for basic and applied research to promote revolutionary technologies; will develop and test potential technologies; and accelerate prototypes of technologies to ready them for use. HSARPA has begun establishing its processes for awarding R&D grants.

In addition, other DHS Directories and programs will include R&D activities. The largest of these is the Directorate of Border and Transportation Security which includes aviation security, explosive detection technologies in commercial aviation, and cargo screening to prevent potential terrorist attacks using air cargo. The Directorate for Information Analysis and Infrastructure Protection has only a small R&D budget directed to cybersecurity, depending for most research in this area to be performed by the S&T Directorate and other agencies such as the National Institute of Standards and Technology.

Other R&D related to homeland security will remain in agencies outside DHS such as the National Institutes of Health (bioterrorism and human-health related terrorism) and research programs within EPA, DOD and DOE.[Source: American Association for the Advancement of Science]
September Dinner Program
Leveraging the Internet: Marketing on a Shoestring
Co-sponsored by
Internet Chamber of Commerce
Tuesday, September 9, 2003, 5 PM
Denver Marriott City Center, 1701 California Street

The Rockies Venture Club and the Internet Chamber of Commerce together will present a program to enlighten entrepreneurs on how to cost-effectively and efficiently use the Internet as a sales and marketing tool. Our panel of experts has experience developing and implementing email marketing programs and technical solutions, building brand equity, selling on the Internet, web development, maximizing marketing budgets and improving the bottom line. Cost: $35 for members; $45 for non-members

September Workshop
Money Matters: Leveraging Legal Strategies for Capital and Compensation
Tuesday, September 9, 2003 3:30 PM (prior to the RVC Dinner meeting)
Denver Marriott City Center, 1701 California Street

When it comes to capital investment and compensation, entrepreneurs have a wealth of questions regarding when and how to legally use cash versus equity to their advantage. In this powerful workshop, you’ll learn about securities and what they can mean to entrepreneurs seeking capital to grow their business. You’ll also learn how you can legally advertise an investment in your business and how can you compensate your employees, vendors, consultants and other advisors without using your precious cash. Topics will range from selling stock beyond your borders; to the difference between investments structured as debt or equity; and using your business plan to protect your business and personal assets when raising money in your company.

This workshop will be presented by David Babiarz of Dufford & Brown, P.C.

Cost: $25 for members; $30 for non-members
SBIR Successes

Recently CU-BAC closed out the Federal And State Technology (FAST) program – funded by the U.S. Small Business Administration (SBA) and the Colorado Commission on Higher Education Technology Advancement Group (CCHE/TAG). This grant enabled us to help Colorado companies increase their success in obtaining Small Business Innovation Research (SBIR) grants to fund innovative, leading edge research, and to provide market studies and business planning services to help award winners commercialize their discoveries.

Here are some highlights of the 18-month program:

- One objective of the program was to increase the use of SBIR to build rural economies. The program delivered 4 workshops on SBIR to rural communities. Eleven rural companies received counseling on the SBIR program resulting in 5 Phase I proposals submitted of which 3 were awarded!

- We also wanted to test a strategy of working through our partnering industry associations to expand participation in SBIR. We conducted 5 industry-oriented workshops with a total of 201 attendees. Forty-one firms in our target industries received proposal assistance and eleven proposals were submitted resulting in 4 awards. Using association email lists to reach member firms proved a very cost effective way to let more companies know about SBIR funding. This strategy was utilized extensively to promote the “Small Business High Tech Boot Camp,” in June. This full-day conference on SBIR was planned primarily by ADA Technologies (a Colorado SBIR award winner) and PBC, Inc. (a Colorado-based SBIR consulting service.) The conference attracted 75 registered attendees with seven different industry groups partnering to promote the event to members.

As our funding for these activities ends, we are glad to see more private-sector initiatives addressing the need for training and information on innovation, technology commercialization and R&D funding. Watch for the next PBC, Inc. conference on SBIR that will include a track on STTR. The event is currently scheduled for October 6.

CU’s Technology Transfer Office Releases Report

The University of Colorado is clearly on the right trajectory for creating a world-class technology transfer operation. Early indications of positive improvement are evident in the recently released CU Technology Transfer Office (TTO) annual report, which shows technology transfer activity at CU is becoming an increasingly critical asset for the University and the Colorado economy. Today, CU’s inventions are moving into the commercial sector faster than ever before and the pace of growth is expected to continue to increase.

University technology transfer is generally recognized as an important driver for a dynamic technology economy. This is particularly true in the bioscience industry. For example, the Governor’s Office of Innovation and Technology’s strategic plan for bolstering the biotechnology industry, called Colorado’s Place in the Sun: An Action Plan to Grow Colorado’s Bioscience Cluster, specified a number of actions that must occur for Colorado to garner the medical and economic benefits of this emerging industrial sector. One prevalent theme throughout the state biosciences plan is the role that research institutions must play in the development of robust biosciences economies. AS stated in the state biosciences action plan, the nation’s preeminent bioscience regional economies such as Boston, San Diego, Seattle, the North Carolina Research Triangle and Washington D.C. have a history of “…engaged research organizations with active leadership across research, technology commercialization and industry partnerships.”

“The role of technology transfer, which facilitates the transformation from laboratory result to commercial value, is the catalyst for many of these growing bioscience clusters,” said David Allen, Associate Vice President for technology transfer for the CU System.

In the past 12 months, US patent applications increased considerably (from 46 to 62), twice as many companies were formed based on CU’s intellectual property (from 3 to 6), and licensing transactions increased from 24 to 33. “If there were no technology transfer efforts to guide inventions from laboratory to marketplace – connecting the inventor to the appropriate industry leader – most of these inventions would be sitting idle,” said CU president Elizabeth Hoffman.

The TTO annual report is framed from the perspective of the June 2002 Strategic Plan for the Technology Transfer Office. The activities and accomplishments of the full

(Continued on page 11)
Homeland Security

Department of Homeland Security has been established as an executive department of the United States with a primary mission “to prevent, protect against, and respond to any acts of terrorism that may occur in the United States. It will also carry out all functions of the entities transferred to the Department, which include acting as a focal point for natural and manmade crises and emergency planning; ensuring that the functions of agencies and subdivisions within the Department that are not related directly to homeland security are not diminished or neglected except by a specific explicit Act of Congress; ensuring that the overall economic security of the United States is not diminished by efforts, activities, and programs aimed at securing the homeland; and monitoring and severing connections between illegal drug trafficking and terrorism.”

To view legislation establishing the DHS:
1. Visit [http://thomas.loc.gov](http://thomas.loc.gov)
2. Search for Bill Number “hr5005”
3. When search results load, select the third version of the bill, “Homeland Security Act of 2002 (Enrolled or Passed by Both House and Senate)”
4. Select “GPO’s PDF version of this bill” or “Printer Friendly Display” to view the complete text of the bill.

You may also obtain the accompanying “House Committee Report Part 1” from the results page.


Protecting the Homeland: The Need for a Public/Private Partnership

September 4-5, 2003, Washington, D.C.

This two-day executive workshop co-sponsored by the Brookings Institute and the Organization Resources Counselors is focused on sharpening the capability to achieve an improved state of organization effectiveness. For more information see: [http://www.brookings.edu/exced/open/homeland.htm](http://www.brookings.edu/exced/open/homeland.htm)

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fiscal year after the report was releases are discussed. Overall, the strategic focus of 2002 is retained and incremental adjustments are suggested. Performance metrics are compared to aggressive goals posed in the 2002 strategic plan and targets are specified for the 2003/04 fiscal year. Accomplishments of the companies in the CU IP portfolio are discussed so readers can understand the impact that CU intellectual property has created at the level of licensee companies.

David Allen stated, “Many different communities are participating in the transformation of technology transfer at CU.” “The TTO is striving to bring students and the business community into the technology commercialization process to help TTO staff and inventors.” “The state of Colorado has some awesome entrepreneurial and technical resources and if technology transfer at CU is to really shine, we need to leverage those resources”.

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