R&D used to be fun. Remember? Then came downsizing, cost cutting, and dictates to be “customer driven”. How can we be leaders if we only do what customers know they want? If we want R&D to be fun again, we need to show leadership and vision. If we want funding and recognition, we should apply our marvelous skills to solving this problem.

The Solution

Texaco’s Houston lab recognized that their survival depended on corporate confidence that they had done good work and would do more in the future. They decided to, “become better marketers.”

We can’t rebuild the fun in R&D by doing better science. We can’t succeed in drilling holes if our only tool is a hammer. We need powerful new tools.

Marketing is a business discipline ideal for technical professionals.

Marketing: The science of making and keeping satisfied customers at a profit, over time, in a competitive environment. Marketing is a science, a logical, manageable, repeatable process. With appropriate tools, good marketing can be engineered just like a good technology.

Products

We develop technologies, not products. How can marketing help us?

Product: Something that meets a need

Need: A requirement for something that is lacking R&D meets needs, and funding is payment. So the results of R&D are products, and marketing can be applied to R&D. We offer both results and the capacity to produce results. We offer technologies and capabilities. When we market technologies, we market current value. When we market capabilities, we market future value.

When we remind customers of past efforts, we market value already delivered. To market R&D, we market the future, the present, and the past.

Value

“Value” is the most important word in marketing.

Value: The sum of benefits received

Benefit: A result of meeting a need

No one ever buys a product. They buy what they think the product will do for them. They buy the value. Not drill bits, but round holes. Not mousetraps, but fewer mice. We market R&D by promoting the value our technologies deliver to logical customers, not by rushing to disclose features. Customers for R&D include the company (and its customers), internal users, and technology-transfer partners. Those customers define value. We own the products; they own their needs. We develop the features; they benefit from using the features.

Technology is the single greatest source of change in most industries, and R&D is a company’s single most important resource for managing that change. Technology is the primary source of competitive advantage in most industries, and well directed R&D is a key to any company’s competitive position. Technology is the only way to keep up with the speed and costs of commerce. R&D engineers efficiency, quality, manufacturability, and manufacturing processes. Look around. Every product you find was invented, manufactured or produced, distributed, and marketed using technologies that came from an R&D environment.

That’s right. The entire commercial world needs R&D to survive. We know...
it, and we must be sure that the world and our customers know it. Knowing needs doesn’t define value. Needs are about the problem; value is about the solution. Needs are about the pain; value is about the gain. Needs mean that something is missing; value means that something has been received.

Proving Value

R&D projects are typically proposed on the technical concept alone – on what can be done. Marketing adds a key ingredient to the funding decision – why it should be done. Marketing R&D involves at least five proofs. Technical: “It works!” Control: “We own the intellectual property!” Value: “Customers need it!” Economic: “A sufficient market exists.” Attractiveness: “The company wants it!”

To derive value, we answer four logical questions:

Who is the customer for our R&D?
Why do they need this result? (Do for each customer.)
What negative consequences happen if those needs are not met?

How can each consequence be restated as a positive? Doing so states benefits, and value is the sum of benefits.

The economic proof, then, proves that enough customers for our value exist in accessible markets, taking into account competition, market share over time, and the time costs of money. The attractiveness proof demonstrates alignment between R&D and corporate strategies.

Sadly, many powerful proofs go for naught because of weak presentations. Remember that the presentation is not about the R&D project, but about what the project will do for the company.

So center the presentation on the company. Clarify the problems (consequences) the project will solve. Then paint a picture – a vision of life with those problems solved (benefits). Finally, introduce the technology as the path to the desired future (features that deliver benefits).

Conclusion

In a very real sense, R&D delivers information that enables well-informed decisions. Companies don’t fund R&D, they fund what they think R&D will do for them. Think about management getting an economic prospectus instead of a standard proposal. We would be presenting a statement of potential value for their evaluation and decision making. We would be presenting ourselves as partners in the development of revenues and competitive positions for the company. When marketing starts early with needs definition and product direction, then R&D produces value, not just things that work. Did you hear that? Marketing helps us take decision making back into R&D by taking responsibility for objective assessment of our projects. We are talking about proposing R&D projects based on what the results will do for our funders and customers. We are even saying (Gasp!) that science and engineering are not ends in themselves, but are ways to achieve corporate and user goals. R&D with marketing is much more powerful and valuable than R&D without marketing. With marketing, R&D can justify funding and adequate staffing. Because marketing is so well suited to us, we can do what we need without losing our technical credentials. We can use our strengths and maintain our technical integrity. We can take logical, manageable steps to reach goals we feel are important. We can manage whatever funding system is devised by the company. We will know the language, the questions, and the answers as well as or better than our funders, users, and allies. We can be leaders within our organizations. Our visions can direct where the company goes and, in part, how we get there. We can share the power of decision making in ways we never have before now. Best of all, we will enable science and engineering through marketing. We will put the fun back in R&D by taking back control.

Gary Lundquist Accelerates business performance with leadership, strategy, and marketing. He can be contacted at 303-840-9949 or by e-mail at garyl@market-engineering.com.

Smart Glasses Order Own Refills

A Japanese electronics company has developed drinking glasses which signal when the glass is empty so that table staff know when to bring a refill. A microchip and a coil in the base of each glass interact with coating on the surface of the vessel how full it is and then signal this information to a base station. These glasses are dishwasher safe. To find out more about these glasses and their production go to http://www.twomobile.com/content/1037.php

Talk on Cell Phone Without Speaking

NTT DoCoMo’s research and development center has taken the first step towards development of a technology that will allow people to talk on the phone without saying a word.

Engineers are developing a sensor, which detects signals coming from the muscle movements in the cheek and jaw made when people are speaking. Signals from the sensor are interpreted and the sound being made by the speaker can be determined but because the system measures such impulses, the user needs to just mouth the words and no actual sound has to be made. The company hopes to complete the development in five years. For more information go to http://www.twomobile.com/content/1025
Perhaps the most exciting aspect of wireless LANs is the freedom they afford network users. We can have network and Internet access anywhere we want in our company without having to plug in. We can join meetings with our PCs in while staying on the network. Less exciting, but just as important, many companies find that wireless LANs can save substantial expense by avoiding costly infrastructure wiring. Wireless also permits easy reconfiguration of office spaces.

Unfortunately, the architecture of wireless LANs gives rise to a number of serious security issues in certain environments. For example, in the past few months the Lawrence Livermore Labs banned wireless LANs outright, while airlines were warned to use wired LANs at airports to prevent subversion by terrorists. The most obvious issue, of course, is how to protect data when broadcast in an open pace. But there are other issues as well. The rapid advances in wireless technology have unfortunately outpaced security capabilities and left some important vulnerabilities such as denial of service attacks, the possibility of spurious network connections and use by unauthorized persons.

1) Denial of service is the risk that the network will be made unusable as a result of being flooded with bogus data
2) Privacy is the risk that unauthorized persons will be able to view the data and compromise its value
3) Unauthorized access is the risk that by inserting spurious "access points", an interloper can gain access not only to the wireless network but to the wired network as well
4) Finally, there is the problem that occurs with all networks - how do we authenticate the user, and not just the device he is using to access the network? Wireless networks increase the risk of unauthorized persons using authorized equipment.

Early wireless systems relied on random "frequency hopping" and fixed identification codes (SSID) for security. Both measures soon proved inadequate and the IEEE soon issued a new standard called "Wireless Equivalent Privacy or WEP." WEP actually performs two functions: First, WEP provides a much more secure way for clients to identify themselves to an access point, and significantly, to also authenticate the access point to the clients. Second, WEP provides the means to encrypt the data flowing between the clients and the access point. Note that WEP must be configured; it is not operational out of the box. Properly installed, WEP provides a modicum of protection against most security risks. The problem is, significantly less than 50% of all wireless networks have WEP configured!

Unfortunately, WEP suffers from two significant problems - 1) key management is cumbersome and 2) the cryptographic algorithms are poorly implemented. The lack of central key management creates a large burden on administrators to manually change the identification keys in access points in an effort to maintain security, with the predictable result that the keys are rarely changed. More ominously, an attack that readily subverts WEP security was widely reported in 2001 - researchers were able to demonstrate a quick procedure which made it possible to read protected traffic and inject spurious data. Thus, the need for a central key repository and management system becomes clear. The "Extensible Authentication Protocol" (EAP) provides this type of functionality by means of a network authentication protocol called RADIUS which stands for "Remote Dial-In Access Server." RADIUS has been used for almost a decade as a standard network authentication system. In fact, RADIUS is supported by all the major telecommunications equipment vendors including Cisco, 3Com, and others, making it a natural choice to enable centralized key management for wireless networks.

EAP provides good basic security, but there are two ways to improve the level of protection. The first is the use of firewall technology to isolate the wireless network from the wired network. Installing a firewall is a good idea, but is meant to protect the wired network from the vulnerabilities of the wireless network - it doesn't affect the security of the wireless LAN. The second technology, Virtual Private Networks, securely encapsulates all the traffic between the client and the VPN control point. It appears that the best protection is a combination of VPN and EAP which provides a scalable, "end to end" solution.

Frequency hopping and SSID are generally built-in and fairly simple to implement, but don't provide much security in an enterprise environment. For this reason, these techniques should only be used in very low value or home networks. WEP is better, works at home, but suffers from both security and administration shortcomings and should not be relied upon in major organizations. EAP, which uses the RADIUS protocol to check an authentication server, is much more desirable for large to medium size organizations. Firewalls help protect large wired networks from the insecurities of wireless networks, and are particularly useful for large organizations. VPNS, when coupled with EAP, offer the best high value wireless security. Preprinted with permission from NCMS Manufacturing Trust.
COLORADO’S PHASE I SBIR “WIN RATE”

Based on recent statistics released by the federal agencies participating in the Small Business Innovation Research (SBIR) program, and compiled by the State Science and Technology Institute, Colorado companies are proficient in winning Phase I SBIR awards. The chart below indicates the number of proposals submitted by Colorado firms, the number of awards received and the “win ratio”: awards received to proposals submitted. The Colorado “win ratio” is higher than the national “win ratio” in every agency except Commerce, Health and National Science Foundation.

Companies can increase their chances of winning a Phase I SBIR award by (a) designing a research project that is innovative and that directly addresses an open agency solicitation topic; (b) assembling a research team with the qualifications and experience to conduct the work, (c) demonstrating a track record in the topic area and in the ability to commercialize results, (d) following agency detailed instructions on proposal preparation, and (e) having a third party edit and critique the proposal before it is submitted.

The Colorado FAST program will provide funds to help cover the cost of proposal preparation assistance delivered by professional consultants contracted with our program. This assistance is available to companies that have not yet won an SBIR research award and which are proposing a software development or environmental research project. It is also available to companies located outside the front-range metropolitan area that are submitting proposals on any topic. Other companies may also be eligible for assistance. Contact Jayne Reiter, Director, Lakewood Small Business Development Center, 303-277-1840. Additional information about the Small Business Innovation Research program is available at http://www.sba.gov/sbir and on web sites of participating federal agencies.

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ADVISOR 2002 - A POWERFUL VEHICLE SIMULATION TOOL GETS BETTER

A powerful tool for the analysis of advanced and conventional vehicles just got better with the release of advisor 2002. ADVISOR (ADvanced Vehicle Simulator) was created by the U.S. Department of Energy’s National Renewable Energy Laboratory’s (NREL). Center for transportation technologies and systems. It’s a flexible modeling tool that rapidly assesses the performance and fuel economy of conventional, electric, hybrid, and fuel cell vehicles.

The user changes component and vehicle specifications—such as electric motors, batteries, engines, and fuel cells—and ADVISOR simulates the vehicle’s response under different driving conditions. This cutting-edge tool runs in the MATLAB/Simulink software environment. For more information about ADVISOR and free access to download ADVISOR 2002 and view documentation are available on the ADVISOR Web site http://www.ctts.nrel.gov/analysis/ Plans call for new versions of ADVISOR to be released annually.

DIRECTORY OF COLORADO MANUFACTURERS

The 32nd edition of the Directory of Colorado manufacturers contains contact and product information on nearly 6,000 manufacturing firms. The volume is divided into three sections for quick reference: Alphabetical, Geographical, and by Products.

The directory is also available on CD. Includes firm name address, city and ZIP code, NAICS code, telephone number, name of primary contact, Web site address and sales and employee range.

Copies of the book may be purchased for $100 each, plus tax. CD’s are available for $250 each. The book and the CD are available as a package for $300, plus tax. Please call the Business Research Division at CU-Boulder at 303-492-8227.
With all the mobility options that are available to those who travel in our urban areas, we hardly have scratched the surface to efficiently move amongst each other. Urban Mobility has become one of the defining by-products of any city that has its eyes squarely on becoming or sustaining a livable community.

Many cities now have undeniable headaches caused by worsening traffic, thick air pollution, hurried commuters, lousy zoning ordinances, and dated urban planning. It seems the more money we make, the more we need, and transportation choices for most are still a very significant purchase. The newest and greatest passenger SUV is now as big as the engineering team can dream. The self-proclaimed environmentalist and chairman of Ford Motor Company William Ford, is now seen pitching his shiny monsters in prime time television. Big and bigger seems to be how the American psyche is progressing these days. It is no wonder that the SUV and other gas guzzlers unnecessarily drain our incomes with little regard.

The simple idea of matching your urban trips with a functional, practical, convenient, economical and environmentally sound mobility choice is starting to become a real determining factor on how people approach their days. In the 1950 and 60’s the train and trolley service in this country was all but crushed by the exploitation and capitalistic desires of US auto makers. We now find ourselves (cities) lined up next to each other with our hands extended asking for large federal funding subsidies to restore our transit systems with modern day light rail. We have come full circle with our transportation needs in this country. We long for the simple commute, easy access to our goods and services and the ability to regain a simple lifestyle. We seek a lifestyle that is not clouded by anxious SOV drivers every morning, or daunting delays that freeze us in inescapable traffic with thousands of mini idling smoke stacks. Searching for solutions has become a treasured goal. Opportunities are arising to meet the ugly and yet normal scene in our cities.

The foundation of a good transit system in a city allows for many additional modes to flourish besides the common single occupant car driver. Transit needs to be dependable, frequent, and needs to fulfill the trips to popular destinations, to a high concentration of jobs, commercial districts and other niche areas. Sure transit doesn’t pull up to your apartment or house or take you to your final destination, but appropriate travel to transit and other urban destinations need to be further explored with vigor.

Feeder transport will become the next hot ticket for a city to warm up to. These are methods in which people can evolve to becoming more in sync with local transit. Imagine not having to own 2 or 3 cars for a household and using one as a carshare member. Carsharing allows for the convenience of driving, without the costs and hassles of ownership. By joining this type of service, members enjoy walking a couple minutes to a location (usually by a transit stop or other easy access point) to obtain their club car with an advance reservation, and have reserved parking for many of their destinations. This shared vehicle approach is the perfect service for the family who would never of dreamed of having one car, yet in fact rarely use a second car. Combining transport services to complete a trip, will become big business in this country, it is called intermodalism.

Intermodalism is becoming a needed public/private service in cities throughout the world. They have evolved from train stations with taxi stands, to regional mobility hubs offering trains, light rail, taxi service, electric vehicle rental, bicycles on demand, busses and the list goes on. By locating all these transportation modes in one centralized transfer point, it allows a person a much greater selection of transportation services. Now a duel-mode commuter (combining bikes and electric bikes, transit, electric vehicles, shuttles, light car use) is not such an oddity. People are purposely selecting mobility modes to match their miles.

Graham Hill is the President of 21 Wheels, an advanced transportation company, Co-Chair of the Boulder County Clean Air Consortium, a local transit advocate, and the President of the Denver Electric Vehicle Council. Contact 303-544-0025, ghill@21wheels.com

**USDA Releases $43.5 Million for Strengthening Agriculture Homeland Security Protections**

Agriculture Secretary Ann M. Veneman today announced that USDA is releasing more than $43 million in state grants and cooperative agreements to bolster food and agricultural homeland security protections. The resources are part of $328 million approved by President Bush and the Congress earlier this year to strengthen USDA's homeland security preparedness.

"These grants are an important component of the Administration's continued efforts to strengthen homeland security protections as it relates to food and agriculture," said Veneman. "States and local communities, along with academia and the private sector, are critical partners in making sure we are prepared in the event of an
Emergency.” The $43 million will provide funding to support critical efforts to strengthen the food supply infrastructure. Of that, $20.6 million will be provided to our state and university cooperators to be used to establish a network of diagnostic laboratories disbursed strategically throughout the nation to permit rapid and accurate diagnosis of animal disease threats; $14 million will be used to strengthen state capabilities to respond to animal disease emergencies, primarily by helping every state to meet the national standards of emergency preparedness established by the National Animal Health Management System; $4.5 million will be used to strengthen state-level surveillance for animal disease; and $4.3 million will be used to assist states to improve their capability to detect plant pests and diseases.

Two awards are anticipated for Colorado research in animal disease surveillance and response. Source: http://usda.gov/news/releases/2002/05/0213.htm

**SBA NEWS RELEASE: SBA AND IRS TEAM-UP TO PROVIDE TAX RESOURCE TO SMALL BUSINESS OWNERS**

The U.S. Small Business Administration and the Internal Revenue Service have issued their newest free information tool—a CD resource guide that will help small businesses manage their tax issues.

The Small Business Resource Guide 2002—What You Need to Know About Taxes and Other Topics CD, jointly developed by the SBA and the IRS, is available to assist small business owners with tax-related issues.

The Resource Guide is an interactive tool that provides tax information, forms, instructions and publications, as well as valuable business information from a variety of government agencies, nonprofit organizations and educational institutions.

It includes other useful information, such as how to prepare a business plan and locating financing for a small business. New and enhanced features to the 2002 Resource Guide include a full-text search engine and business tutorials. It also provides a comprehensive resource directory that supports each stage of a small business’s life cycle and offers an e-filing video as well as basic tax law training modules. It addresses all small business tax issues from formation to tax filing and reporting responsibilities when starting, expanding, closing or selling a business. Through Internet access, users can subscribe to a multi-agency e-mail newsletter, view updates to the Resource Guide and link to other government agency and nonprofit Web sites.

The Small Business Resource Guide 2002 is available through Internet access from http://www.sba.gov/starting by clicking item number five “SBA/IRS CD Small Business Resource Guide.” The 2002 CD is also available free by calling 1-800 U ASK SBA or 1-800-TAX-FORM.

**2002 STATE NEW ECONOMY INDEX**

The 2002 State New Economy Index: Benchmarking Economic Transformation in the States, published by the Progressive Policy Institute's technology and New Economy Project (PPI) and released online this week, offers an innovation-oriented public policy framework for the states to foster success in the New Economy. States that overhaul traditional approaches to economic development and replace them with a new approach focused on boosting skills, entrepreneurship, technology and quality of life are best prepared to prosper in the New Economy, according to this new accounting of state economic transformation to the New Economy.

Using a weighted formula of standardized scores, PPI found Massachusetts, Washington, California, Colorado, Maryland, New Jersey, Connecticut, Virginia, Delaware and New York as the top 10 performing states in the New Economy, respectively. Raw scores and relative rankings are provided in each indicator for all 50 states. 2002 State New Economy Index: Benchmarking Economic Transformation in the States is available at: www.ppi.org [Source: SSTI Weekly Digest]

**COLORADO BIO-MEDICAL DIRECTORY IS ON-LINE**

A new on-line directory of biomedical companies and organizations in Colorado is now available thanks to the efforts of the Colorado Biomedical Consortium. Colorado Biomedical Consortium is an alliance of science-based organizations created to raise awareness of the biomedical industry in Colorado. The consortium includes Colorado Medical Device Association, Colorado Biotechnology Association, Colorado Alliance for Bioengineering, University of Colorado Health Sciences Center, Fitzsimons Redevelopment Authority and University of Colorado Foundation.

The new directory is designed to showcase Colorado’s biotechnology, medical device and pharmaceutical companies, plus suppliers, service providers, academic institutions and associations.

The site will serve to promote Colorado biotechnology nationally and internationally and compile key industry data for a comprehensive report scheduled for release in October 2002. A print directory published in October, will also include a comprehensive 100+ listing of research faculty in Colorado research institutions. This section will include information about research interests and current faculty research projects. Listings are FREE to any Colorado company. To register your company, or view the directory, visit www.coloradobiomedical.com.
The Colorado Chapter of the Technology Transfer Society has been conducting a continuing series of discussions on its mission to support the technology transfer market. This market has traditionally been defined in terms of the commercialization of technology developed either in academia or government. While these remain important sources of technology for industry, there is a growing movement by entrepreneurial companies to commercialize technology through internal incubation and spin off.

In this model, a parent company, rather than developing a technology for eventual revenue generation from consumer sales, instead develops technology for commercialization by other companies or by spin offs funded and organized in the parent company. In this model, the parent company acts, in many respects, like a government lab. It generates intellectual property and then looks for opportunities to move it to market. The difference lies in the fact that it expects to take care of the technology transfer itself, even to the point of organizing a consumer for that technology in the form of a subsidiary.

The virtue of this model is that it allows the parent company to concentrate on the strategic view of the market. Many technology companies founder when their first product to market begins consuming so much time and attention that there is never a follow up product. In this new approach to technology transfer, a discrete organization is created that expects to be independent and that can focus 100% of its attention on commercializing an intellectual property. The down side is that, the parent must devote at least part of its time organizing the startup and must carry the new company financially until it is viable.

Packet Design, a California company that builds data network management solutions is a good example of this model. It is a relatively new company, organized in 2000, that focuses on the strategic view of managed networks rather than the narrow focus of the latest product. Currently, it is involved in the organization of its latest subsidiary Packet Design CNS. This company is taking to market Packet Design’s very innovative technology for route analysis in the managed network space.

Packet Design expects to adopt a model of perpetual innovator. This will keep the organization very small and focused, will keep overhead costs low and will keep a strategic flavor to their planning. Indications are that this nimble new model will be successful and that there will be other small companies that adopt this paradigm.

For technology transfer professionals, Packet Design represents good news. As companies increasingly adopt a “revenue through intellectual property” approach, they will be looking for professionals who have had experience organizing such transfers. The Colorado Technology Transfer Society seeks to promote these skills and provide a forum for interaction between professionals in this area. Technology companies seeking such expertise can contact the chapter through Mike Jude, Secretary and Treasurer, at 303 543-9500 ext 122 or at jude@emausa.com.

Entrepreneurial Solutions is a unique business consulting firm located in Boulder, Colorado. The company is managed by five second-year Master of Business Administration students from the Leeds School of Business at the University of Colorado. ES is an ongoing firm that provides business solutions for nascent, as well as small to medium-sized companies, at highly competitive prices. Each year, new partners are selected from the pool of first-year MBA students, based largely on their passion for entrepreneurship and on their wide range of work experience. Current partners possess substantial experience in consulting, project management, finance, marketing, engineering, operations, real estate, tax, law, public sector, and business start-ups. In addition, ES has access to a skilled, experienced group of individuals, made up of members of the business community and the Leeds School faculty who serve as a board of advisors to the consulting team.

Entrepreneurial Solutions has provided the following services to area companies since 1998:

- Business Plans
- Market Research and Strategy
- Financial Analyses
- Competitive Intelligence
- Feasibility Studies
- Funding Alternative Analyses

Website: www.entrepsolutions.com
Contact: info@entrepsolutions.com
The Colorado Environmental Business Alliance (CEBA) is proud to announce that its recent nomination of RESONANT SHOCK COMPACTION, LLC. (RSC) has resulted in RSC being honored with the Colorado Small Business Exporter of the Year Award by the Small Business Administration Office. This prestigious award was presented to RSC at the Colorado Small Business Week Awards Luncheon on May 20th, 2002.

RSC’s exporting project has focused on the conversion of coal utility ash and other industrial waste materials into structural and ocean based products. Development of systems from this project will launch RSC as a worldwide supplier of sustainable construction technology. Initial training and technology transfer will take place at RSC’s product development facility at the University of Denver. The systems development has been done at NKK’s Concept Engineering Center outside Tokyo. This joint sustainable material development program is a good example of the types of opportunities that are available for Colorado companies interested in entering the growing international environmental marketplace.

ENVIRO-PRO

CEBA and the Colorado Office of Economic Development & International Trade are in the preliminary stages of arranging a delegation of Colorado environmental businesses to travel down to Mexico City in late September. The central draw for the delegation will be the Enviro-Pro 2002: International Environmental Exhibition and Conference (http://www.ejkrause.com/enviropro/). Enviro-Pro is Latin America's most important and largest international environmental conference and exhibition. Technical fields to be covered include, environmental management, wastewater treatment, air quality, waste/recycling, soil & groundwater, renewable energy, and water resources. The conference runs from September 25th – 27th, 2002 at the Mexico City World Trade Center. Participants will have the option to share in an exhibition booth; Colorado companies who want to have a presence at the conference, but cannot take the time to attend can also utilize this opportunity. One-on-one meetings will be prearranged for businesses joining the delegation. For more information please contact Sonia Kobrinsky at sonia-ceba@attbi.com.
ECONOMIC BENEFITS FROM SBIR RESEARCH REQUIRE ACCESS TO CAPITAL FOR SMALL FIRMS

Companies that conduct research funded by the Small Business Innovation Research (SBIR) program are looking for the resources to support the commercialization of the resulting new products and services. While a track record of commercial success is becoming an important criteria in federal agency funding decisions, companies face many challenges in moving beyond the laboratory to actual production and sales.

According to a survey conducted by CU-BAC, 73% of Colorado SBIR award winners indicate that financing is the most important factor to achieving Phase III success. “Phase III” refers to the period following an SBIR government-funded R&D project where the company is expected to find private investment to complete development, production and marketing. While over 60% of respondents were successful in gaining additional research funding, only 15% of responding firms have been able to attract investor capital.

In addition to direct investor financing, many SBIR firms are looking for alternative ways to get new products into the marketplace through strategic partnerships or companies that want to license the new technology. Even with financing barriers, the SBIR program is making significant contributions to participating firms and to the Colorado economy. Over 80% of responding firms have developed a new product or service from their SBIR research resulting in an estimated 415 new products and services. Since winning their first SBIR award, these 80 firms have created 360 new research jobs and 260 non-research jobs in the Colorado economy.

The survey was conducted as part of the Colorado FAST (Federal And State Technology) partnership program operated by CU-BAC. The program offers free commercialization services specifically to companies with environmental or software products/services developed from SBIR research.

Additional services are available to SBIR companies in any technology area, that are interested in locating, partnering or licensing in rural Colorado. For more information contact 303-554-9493, Bud McGrath, extension 14 or Don Webb, extension 11.

The Colorado Photonics Industry, which is facing the challenge of a sluggish business environment, must now contend with reduced support from the State of Colorado for the Colorado Advanced Photonics Technology Center (CAPT) and elimination of the popular CPOP programs. CAPT supports over 60 businesses with state of the art test and pilot fabrication facilities. The CPOP program was a directed research program that funded as many as 14 projects a year. The companies would essentially direct the research of a graduate student on a specific topic. The company and the state contributed to funding the research and the university essentially provided facilities and faculty advise at no cost. The program was a good deal for both the universities and the companies.

These programs came under assault due to a $1B shortfall in state revenue. Even though the programs expended less the $600K a year out of a state budget of $13B, they were easy prey because of a lack of a strong lobbying presence for technical industries. In the months to come, the CPIA will be laying the groundwork to strengthen the legislative presence in cooperation with other industries and university institutions. It is critical that the governing bodies see how these programs help create and nurture good paying high quality jobs in the state. When it comes to supporting these programs, the CPIA has put its money where its mouth is. The CPIA is providing $15K to CAPT to help fund operations for the next year. The CPIA has also funded a full time scholarship for a student in the FRCC Photonics/Vacuum Technician program. Collectively, this represents over 90% of the CPIA annual revenues.

The CAPT Center is relocating to Longmont this summer. The offices and general development labs will be in place by mid July. The Clean rooms and quality labs will be up the first week in August and the environmental lab is scheduled for relocation in late August. In conjunction with the relocation, CAPT has announced an Incubator program where fledgling companies may permanently lease space from CAPT. For further information, call Tom Mahony at 303 365-8410 or e-mail Tmahony@CAPTCenter.org.

CAPT and Front Range Community College will be co-hosting the CPIA quarterly meeting scheduled for Thursday, August 15 at the new Longmont Facility. The address is 105 S. Sunset, Longmont, 80501. The new CAPT phone number will go into effect on July is 720 652-9945 and fax 720 652-9948.
The USDA SBIR program is adding a new topic area on wildlife issues. The program will focus on wildlife in terrestrial (including birds), freshwater and estuarine environments but not the marine environment. The aim is to develop new or improved technologies and environmentally sound approaches for improved management of wildlife that will reduce the adverse effects of wildlife on agriculture and people and enhance the sustainability of wildlife populations.

Suggestions of possible research problems would include 1) development of improved non-lethal methods to reduce damage caused by cormorants feeding on fish in aquaculture ponds, blackbirds feeding on sunflowers prior to harvest, or deer feeding on crop and ornamental plants, 2) development of improved methods to regulate wildlife populations at desired levels through use of immuncontraceptive approaches, 3) development of vaccines to combat diseases such as rabies in wildlife and thus prevent the spread of the disease to livestock or people, and 4) habitat restoration efforts that will result in improved control of wildlife populations.

In the wake of the September 11 terrorism attacks on the USDA SBIR program is encouraging applications that deal with bioterrorism issues and ways to improve the homeland security of rural communities. Proposals on bioterrorism might deal with 1) improved methods for detection of animal diseases such as foot and mouth disease, 2) improved methods for detection of toxins or pathogens in food and 3) improved methods for detection of contaminants in water. Rural communities are vital to our nation's existence and efforts are needed to help rural communities with problems such as 1) improved planning on how to deal with natural or man-made disasters, 2) possible interruptions in the food and water supplies, and 3) improved telecommunication capability to enable communities to obtain vital information even if transportation links were broken and left the community isolated. Proposals dealing with rural communities should be submitted to the Rural and Community Development topic area. Proposals dealing with bioterrorism should be submitted to the appropriate topic area (eg. Food Science and Nutrition if the proposal deals with food safety).

In the USDA SBIR program applicants are free to propose any idea they wish and thus the ideas are investigator-initiated.

The National institute of Heart, Lung and Blood, one of the National Institutes of Health, has awarded a Small Business Innovation Research (SBIR) grant to Rose Biomedical (www.rosebiomed.com) to research and develop technology to treat epistaxis, or nosebleeds.

Rose Biomedical (RB) will be partnering with the inventor of the nasal contour pack technology, Dr. Gregory Hogle, the Chief of Otolaryngology- Head and Neck Surgery at Rose Medical Center. Dr. Hogle designed this novel technology after observing that current treatment methods were often ineffective, painful and could cause damage to the nasal mucosa. Dr. Hogle's technology is designed to be effective, quick and easy to insert and remove, and much less painful than current packs.

Sixty percent of the U.S. population report at least one episode of a nosebleed during their lifetime. Most nosebleeds can be managed at home. However, due to the extensive blood supply to the nose and nasopharynx, excessive bleeding can occur quickly, creating a potentially life-threatening emergency. Epistaxis can be very difficult to control and can lead to a life-threatening event that can require emergency treatment and a surgical intervention. Approximately 6% of epistaxis episodes require medical attention, amounting to nearly a million healthcare visits per year in the United States. It has become one of the most common acute ear, nose and throat disorders requiring hospital admission.

"The design of this nasal contour packing technology was a challenge," Hogle noted, "because the nasal pack must maintain all of the advantages of the current packs while eliminating the inherent disadvantages."

RB and Hogle will begin the research by developing and testing a prototype. If the prototype proves successful, the research will be eligible to progress to clinical trials in humans. Commercialization of the product through a spin-off company or strategic partner is planned after successful clinical trails have been completed.

"Our mission is to help companies and inventors introduce healthcare products which improve the quality of care and reduce costs," noted Ken Weil, President of Rose Biomedical. For more information contact, Rae Reynolds at 303-320-2993 or Reynolds@quada.com.

The USDA website is http://www.reeusda.gov/sbir
STRONG R&D SPENDING BUTTRESSES US ECONOMIC GROWTH

Inspired by American success, other nations are increasing their R&D investments and focusing on areas such as physical sciences and engineering, which receive comparably less funding in the United States.

Those changes, S&E Indicators concludes, could lead to the creation of new centers for research excellence abroad, and return to those home countries more of their U.S.-trained scientists and engineers. The report acknowledged the many contributions of non-US born scientists to America's vitality, but added "the country's international economic competitiveness ultimately rests on the US labor force's own capacity for innovation and productivity.

R&D investments by US industry at home have contributed to a steady stream of innovations and spurred economic growth, increasing per-capita income. Concurrently, new forms of R&D and technological alliances connect firms and universities, nonprofit organizations and government. The very conduct of research and development has changed in response to market pressures and the capabilities created by the information technology revolution. This has led to transformations in other areas, too, including a growth in science-based patents and a much-increased level of high-tech exports.

Changes in the US economy have spilled into the workforce. Information and technology-based changes in the economy have created new opportunities for highly trained workers. Science and engineering occupational fields are growing faster than the overall growth of the American workforce. The Bureau of Labor Statistics predicts that during this decade, S&E occupations will grow by 47 percent, compared to 15 percent for the labor force as a whole. These workers have provided growth for American high-tech manufacturers, which produce about 35 percent of world output of major high-tech industries. The high-tech industries' share of national manufacturing output rose from 9.6 percent to 16.6 percent during the period 1980-1998.

In the past decade there has been a steady increase of participation by women and minorities in the US science and engineering enterprise. The number of foreign students enrolled in US universities has risen as well. In fact, half or more of the people receiving US engineering or computer science Ph.D's were born abroad.

In academia, the number of doctorates awarded in sciences and engineering between 1991 and 2000 rose from 24,023 to 25,970. Within those totals, the number of Ph.D's going to women increased from 6,932 to 9,396, while the number to white men fell form 8,585 to 7,909.

Despite many state and national reforms initiated during the last decade, concern continues about the quality of mathematics and science education in grades K-12, accord-

NSF GRANTS TO BOOST HOMELAND SECURITY RESEARCH

A series of new grants from the National Science Foundation (NSF) will support research related to the terrorism and anthrax incidents of fall 2001 and will contribute to homeland security objectives.

The university-based teams will use the federal funds for research in areas such as detection and decontamination of biological or chemical warfare agents, cyber security, and continuing social responses to September 11. For more information and complete list of NSF grants, see: http://www.nsf.gov/od/lpa/news/media/01/nsf_response.htm.

DATASPLICE INVITED INTO BUSINESS INCUBATOR

The Fort Collins Virtual Business Incubator announced today that DataSplice, LLC has been invited into the Incubator after undergoing a rigorous selection process.

DataSplice software enables wireless remote handheld PC's to view and edit data from enterprise databases. The software system uses wireless, cellular and off-line infrastructures to transmit data to employees working off-site. DataSplice customers include Fortune 100 companies, such as Sara Lee, Bridestone, Delphi, Premcor and a major Japanese automobile manufacturer. Their software promises to reduce paperwork and deployment time, improve inventory control, and provide 100 percent work order data collection. DataSplice is a part of the Real Time Enterprise Computing market that is expected to exceed $50 Billion within first years.
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All readers of Technology Community will soon be receiving the newsletter electronically. Starting this month, some subscribers will find their news delivered via an email notice linked to the news online. They can read this issue in pdf format, print a hard copy at their desk, and forward the email notice to colleagues. By the September issue, all subscribers will be converted to the electronic format. This change allows us to continue providing technology news to a larger number of readers, in a more timely manner, and at less cost. If you experience any difficulty with this distribution method, please let us know so we can make this a smooth transition for everyone. Telephone 303-554-9493, Kimberly Croll, extension 15 or Karen Eye, extension 13.