

COLORADO BUSINESS REVIEW

A publication of the Business Research Division
Volume 71, Number 6, 2005

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Colorado National Guard Haz Mat response team from Buckley Air Force Base participates in hazardous material exercise at CU-Boulder.

Colorado Institute of Technology Helps Technology Industry Meet Challenges

Margaret Cozzens and J. Bruce Donaldson

The Colorado Institute of Technology (CIT) was initiated by the governor of Colorado in early 2000, and put into statute by the legislature in April 2000. CIT is a nonprofit organization that is funded by sponsorships from various sectors. Industry sponsors have included Electronic Data Systems, Hitachi Data Systems, Level (3), Oracle, Qwest, Sun Microsystems, Kaiser-Hill, eCollege, TransTech USA, and Hogan & Hartson.

When CIT was founded, a major issue facing the technology industry was an insufficient supply of trained workers. One of the initial goals of CIT—to double the number of technology-educated people in the workforce—was defined and quantified by using workforce

research and analysis. CIT then worked to accomplish this goal by providing funds for computer science and information systems programs at Colorado's higher education institutions. After the economic slowdown of 2001 through 2004, and layoffs in numerous technology sectors, CIT reassessed its initial goals and refocused its resources to address the new challenges of 2005 and beyond.

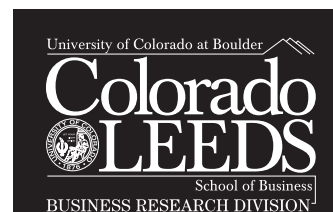
CIT Today

CIT seeks to build strong collaborations among technology companies, higher education institutions, and federal laboratories to develop the workforce, research, and products necessary for Colorado's economic growth. It is a convener, coordinator, and catalyst for change.

CIT's goals are as follows:

- (1) To ensure the availability of a highly qualified workforce for Colorado companies that focus on or utilize technology;
- (2) To establish Colorado as a center of innovation and development of new knowledge in technology applications, processes, products, and services; and

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Think Broadly.
Act Boldly.



CIT HELPS MEET CHALLENGES CONTINUED FROM PAGE 1

Mark Your Calendars!

41st Annual COLORADO BUSINESS ECONOMIC OUTLOOK FORUM to be Held December 5

This annual half-day business event provides a general forecast for the Colorado economy, and gives leaders detailed information to help make business decisions. Forum breakout sessions will focus on four key areas:

- Colorado's Changing Population and Workforce
- One of Colorado's Best-Kept Secrets: The Business of Homeland Security
- The Effect of the Volatility of Energy Costs on Colorado's Economy
- Colorado's Evolving Real Estate Market

Now in its 41st year, the Colorado Business Economic Outlook Forum provides insight into the details of the Colorado economy in the coming year.

This year the Colorado Business Economic Outlook Forum will be held on Monday, December 5, beginning at 1:00 p.m. at the Marriott City Center Hotel (1701 California Street, Denver).

A networking reception will follow the forecast and discussion sessions at 4:30 p.m.

This event is sponsored by the Business Research Division, the Leeds School of Business, and Compass Bank. There is no charge for this event, and no reservations are necessary. *Join us on December 5!*

(3) To ensure the economic needs of Colorado's technology industries are addressed by policymakers.

CIT achieves its goals by providing a combination of programs and services, including workforce initiatives, research and equipment grants, sponsored research and whitepapers, and public service announcements, and through the Homeland Security Institute.

CIT initiatives include the following:

- (1) Broaden the diversity of the technical workforce in Colorado
- (2) Develop targeted workforce education programs
- (3) Create and/or expand internships and cooperative education experiences
- (4) Develop technical support programs for K-12 schools, parents, and students
- (5) Foster the development of homeland security education programs
- (6) Facilitate and coordinate homeland security research activities
- (7) Create homeland security leadership short courses
- (8) Provide policy analysis
- (9) Develop large scale projects

Homeland Security Education Initiative

The Colorado Institute of Technology Homeland Security Institute (CITHSI) coordinates, facilitates, and stimulates efforts among Colorado industries, higher education, and state and federal agencies around homeland security. CITHSI integrates an education initiative with research initiatives in order to have a fully trained workforce available to implement the research findings and continue the ongoing research. These education initiatives include working with the Colorado Homeland Security and Local Affairs Departments to provide training for first responders in the state. These efforts taken together as a whole will make Colorado and the nation a much safer place.

To fulfill this initiative, CIT is

- Providing information on all available homeland security educational programs in Colorado;
- Encouraging degree programs to prepare people for leadership positions in industry and the government relative to new homeland security initiatives;
- Fostering the development of homeland security curriculum for engineering, business, arts and sciences, architecture, and policy programs in higher education institutions in the state; and
- Creating a place where state agencies and others can go to get help designing short-term educational programs, and/or find the latest research on a particular topic.

Homeland Security Research Initiative

CITHSI places particular emphasis on areas of telecommunications and warning systems; biological and chemical modeling and countermeasures; sensor systems; financial risk analysis and mitigation; infrastructure protection, including transportation, water, etc.; forensics; and policy analysis. The ability of industry, federal laboratories, and universities to work collaboratively together on projects of national importance will attract new businesses to Colorado.

To accomplish this initiative, CIT is


- Establishing research collaborations among those in industry, academia, and federal labs on very specific security focused topics (i.e., visual identification techniques, toxin dispersal, building materials resistant to germ penetration, tamper resistant sensors, etc.);
- Creating a repository of researchers and topics that could be used to immediately initiate important research studies as the need arises; and
- Providing for immediate technology transfer opportunities from higher education and federal research laboratories to industry and thus to market.

Homeland Security Leadership Short Courses

In response to global challenges and threats, CIT has a unique opportunity to bring together its assets to help Colorado industries respond appropriately to these challenges and threats. We live in a time that requires unique solutions to the day's problems. Companies are just now beginning to understand that they have roles and responsibilities regarding terrorist threats and attacks. Yet, they do not know what all of their responsibilities are and what possible solutions exist to deal with these new challenges.

To meet these needs under this initiative, CIT is creating the following:

- Executive one-day leadership courses for CEOs, COOs, and CIOs on such topics as the Patriot Act and the Antiterrorism Act;
- Short courses on CEO and board of directors' legal responsibilities, and financial fall out; and
- Short course educational programs for those providing rapid training of first responders in the Departments of Homeland Security, Public Safety, and Local Affairs.

More information about CIT is available at <http://www.coloradoit.org/>. 

Margaret Cozzens is President and CEO, and J. Bruce Donaldson is Vice President for Sponsorship Attention and Special Projects, both with CIT. They can be reached at 720-567-4006.

The Business of Homeland Security in Colorado

Gary Horvath, Lisa Shade, and Cindy DiPersio

Over the summer of 2005, the Colorado Institute of Technology (CIT) (www.coloradoit.org) commissioned the Business Research Division to develop a database of organizations conducting research, providing services, or selling products related to homeland security in Colorado. This brief summary highlights segments of that study that look at the evolution of homeland security in Colorado, and examine cluster strengths and challenges.

Overview of Homeland Security in the United States

The threat of terrorism is just as real today as it was on September 11, 2001. Events such as the recent hurricanes in the Gulf Coast serve as a reminder that homeland security includes more than terrorist attacks. These tragic occurrences have also demonstrated that effective homeland security policy is based on programs that include mitigation, preparedness, response, and recovery.

About 85% of the country's infrastructure is owned and maintained by the private sector. Most businesses do not have comprehensive plans that include mitigation, preparedness, response, and recovery. As homeland security standards are finalized in various sectors of the economy, numerous opportunities will arise to provide research, services, and products to help firms comply with these standards. While much of the research is currently being funded by federal agencies, ultimately growth in this sector will most likely be funded by the private sector.

Some homeland security experts believe that as companies, and even communities, develop comprehensive business plans that incorporate homeland security, they will develop competitive advantages based on their ability to create the perception that safety and security are a major component of their brand name. At some point, those competencies may be viewed as favorably as an educated workforce or good quality of life.

Building on Colorado's 50-Year Homeland Security History

Defense, aerospace, and aspects of homeland security related to these clusters have been a part of the Colorado economy for more than 50 years, dating back to the formation of Ball Aerospace and Rocky Flats in the 1950s. The homeland security area now includes the

Homeland Security Institute at CIT, the Natural Hazards Research and Applications Information Center at the University of Colorado at Boulder, and the partnership of the Colorado Springs Technology Incubator with the Technology Acceleration for National Security Network. The presence of the U.S. Air Force Academy, military bases, and nuclear cleanup sites has helped provide a foundation for the cluster.

As the private sector continues to grow, the entrepreneurial spirit of Colorado will most likely result in the incubation of numerous support companies. These firms will be founded on the research conducted at state and regional universities and large corporations. From both a supply and demand side, it appears that Colorado is favorably positioned to take advantage of the country's needs for improved homeland security.

FUNDING WAS THE MOST COMMON CHALLENGE IDENTIFIED BY CORPORATE AND ACADEMIC HOMELAND SECURITY RESEARCHERS.

One of Colorado's economic strengths is its highly educated high-tech workforce. Approximately 7% of state firms can be defined as high tech, based on their NAICS classification. These companies account for about 10% of total nonagricultural wage and salary employment and roughly 19% of total wages. The homeland security cluster is both a benefactor and integral part of this workforce.

Of almost equal importance is the presence of the military, nuclear cleanup sites, and the aerospace industry in Colorado, specifically, NORTHCOM, NORAD, Ball Aerospace, and Lockheed Martin. These facilities are complemented by the Centers for Disease Control and Prevention Laboratory in Fort Collins and the Federal Center in Denver. In addition to these assets, Colorado homeland security leaders identified the state's geographic location; innovation and entrepreneurial spirit, as edified by the state's third-place ranking in SBIR funding; and the presence of large corporations with federal contract experience as other strengths.

Cluster Challenges and Opportunities


Funding was undoubtedly the most common challenge identified by corporate and academic researchers. Many small business owners and academicians lack the skills necessary to start a new business, specifically one that almost totally depends on government funding. In addition, some academicians are frustrated with the need to commercialize their research as a means of generating income to continue it.

Some business leaders, representing firms of all sizes, expressed concern that some of Colorado's elected officials do not understand how to appropriately support the organizations in the homeland security cluster. This concern has been echoed in past studies of the defense- and aerospace-related clusters in Colorado.

A portion of the funding challenges relate to the fact that the Homeland Security Department is new and that its strategies are not well-defined. Given that the products and services in this sector have very specific target customers, the lack of defined requirements is frustrating.

Small-business owners felt they are at a disadvantage because of the need to access procurement contacts within federal agencies in Washington. In most cases, business leaders recognize the value of university research and are amenable to working with these institutions as a means of gaining access to their research. Some, however, have been frustrated dealing with university red tape (hiring processes, clearances, tech transfer policies, etc.).

Despite these challenges, Colorado companies have a sense of optimism related to the cluster's growth in the next three to five years, particularly in Colorado Springs. Organization leaders are very passionate about their products, services, and research.

This passion and optimism is reflected in the variety of suggestions from business leaders on how to foster growth in homeland security cluster. These suggestions include improving communications within the cluster; increasing interaction and support from the federal government; strengthening support from state government; improving cooperation (when appropriate) within the cluster; and building on Colorado's assets. 

Gary Horvath, Lisa Shade, and Cindy DiPersio are members of the Business Research Division's project team. They can be reached at 303-492-8227.

The *CBR* is a bimonthly publication of the Business Research Division at CU–Boulder. Opinions and conclusions expressed in the *CBR* are those of the authors and are not endorsed by the BRD, the Leeds School of Business faculty, or the officials of CU.

View our Web site: <http://leeds.colorado.edu/brd/>

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This report is not produced at taxpayer expense. The University of Colorado at Boulder is an equal opportunity/affirmative action institution.

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Colorado Springs Technology Incubator Joins National Security Network

Gary Markle

The Colorado Springs Technology Incubator (CSTI) celebrated its four-year anniversary on March 15. During this period, CSTI client companies have become significant contributors to El Paso County's economic growth, generating a total of 90 full-time equivalent employees, annual payrolls of \$5.7 million, and annual revenues of \$4.5 million. Moreover, CSTI clients have received an estimated \$28.5 million in investment capital.

In August 2005, CSTI joined a national partnership of incubators called the Technology Acceleration for National Security Network (TANS). TANS is an association of six leading technology incubators that serve communities/regions with technology environments and "eco-systems" that will support homeland and national security technology interests and concerns.

The network is organized by the Chesapeake Innovation Center (CIC), America's first business accelerator for homeland and national security, which acts as a technology "talent scout" for leading corporations and government agencies in the security sector. Major partners include the National Security Agency, Bearing Point, and Northrop Grumman.

Services Available to Clients

The TANS Network helps incubators and their client companies serve the homeland and national security sectors. It focuses the power of entrepreneurship on the advanced technology needed to secure our homeland and win the global war on terrorism.

The network is designed to help member incubators offer valuable new services to current and prospective clients. While each TANS incubator will maintain their current relationships with clients and continue to provide them with basic incubation services, TANS members will also offer sector-specific services to help their clients succeed in the multibillion dollar homeland and national security sectors. Moreover, member incubators will be able to tap into the experience and networks of their fellow members to assist their client firms.


Opportunities for Entrepreneurs

CSTI believes this is an extraordinary opportunity to assist other incubators and their client companies within Colorado and surrounding Rocky Mountain states. The State of Colorado has a significant focus on homeland security issues through the Colorado Institute of Technology (CIT). The TANS Network will help the efforts of CIT and incubators within

the state that have client companies focused on national security issues.

CSTI is developing a program that will extend the relationship of the TANS Network to incubators across Colorado. It will assist entrepreneurs by providing opportunities to participate in the nation's homeland security programs through direct access to the partners of CIC and other member incubators of the TANS Network.

The network provides huge benefits to entrepreneurs across Colorado. They will have special access to government agencies and top defense contractors who will review their technologies for use within the agency or corporation. Additionally, entrepreneurs will have access to the special programs developed for the TANS Network by these agencies and firms. CSTI believes this network is critical for entrepreneurs who struggle to find ways to introduce their technologies to our national security interests.

The network also provides benefits to incubator managers. It enables them to link their client companies who are focused on homeland security issues to a network dedicated to finding technologies within a sector at the highest level of national importance. 

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