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The California Innovation Corridor

By Judy A. Turner, CEcD and Victoria Conner

TRANSFORMATIONAL CHANGE THROUGH REGIONAL ECONOMIC DEVELOPMENT

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the california innovation

CORRIDOR

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How can a small nonprofit organization help accelerate economic development, education and workforce development transformation for the 21st Century? Sometimes as an economic development professional, you need to be careful what you hope for because sometimes you are successful!

In January 2006, the California Space Authority was one of three grant proposals submitted by California Governor Schwarzenegger to the U.S. Department of Labor (DOL) for funding under the WIRED (Workforce Innovation in Regional Economic Development) request for proposals. CSA's proposal, comprised of more than 60 partners, identified 25 projects across 13 counties stretching from Alameda County in the North down to San Diego County to the South.

In the grant proposal, CSA effectively established the need for assistance based upon three factors: 1) Entrepreneurship was seriously under potential as reflected by the results of the Entrepreneurial Index; 2) California had suffered a huge loss of manufacturing jobs (438,500) between 1990 and 2004; and 3) there is currently an inadequate technical workforce in the training and educational pipelines to replace the anticipated loss of technically skilled workers due to the looming boomer retirements projected in the next seven to ten years.

In February 2006, DOL announced that CSA was one of 13 regions across the nation to be awarded a three-year, $15 M WIRED grant. The work being accomplished through the WIRED grant program is leveraging the talents, skills, and abilities of more than 100 entities throughout the California Innovation Corridor to facilitate a region wide "transformational" workforce strategy while fostering entrepreneurship development, supplier/manufacturing competitiveness, and 21st Century talent development. (See Figure 1.)

Former Apollo 11 astronaut Buzz Aldrin attended the NASA Regolith Excavation Challenge, co-sponsored by the California Space Authority. Here he reviews an excavator created by university students.

BACKGROUND

Governed by a statewide board of directors, the California Space Authority (CSA) is a 501(c)(6) nonprofit corporation representing the commercial, civil, and national defense/homeland security interests of California's diverse space enterprise

Judy A. Turner, CEcD, is the director of Programs and Partnerships for the California Space Authority, Pasadena, CA.

Victoria Conner is the principal of Strategic Vitality, LLC in Santa Maria, CA, a WIRED partner.

TRANSFORMATIONAL CHANGE THROUGH REGIONAL ECONOMIC DEVELOPMENT

The California Innovation Corridor is more than a geographic region spanning 13 counties. It is a living organism representing a burgeoning network of more than 60 partnering entities focused on heralding innovation. It is a living organism, a coalition built on collaboration that collectively is pulling together the pieces of complex solutions to address the mounting pressures of global competition through entrepreneurial support, industrial rejuvenation, and 21st Century talent development. The California Space Authority, a small industry focused nonprofit, is driving transformational change across California and the nation to support the needs of the space industry and American competitiveness.

stakeholder community which includes entities from four domains: industry, government, academia, and workforce. CSA's strategic purpose is to retain, grow, and create California space enterprise. Its stated mission is "To provide California space enterprise voice, visibility, and a competitive edge." CSA is a member-based enterprise association working closely with stakeholders statewide to foster California's high technology competitiveness and space enterprise vitality.

A $22 B economic enterprise representing 31 percent of the U.S. space market and 19 percent of the global space market, California space enterprise impacts 265,000 jobs statewide with a wage impact of $13.4B and a total economic impact of California space enterprise exceeding $50B. Consumer, business, industry, and government activities now dependent upon or heavily utilizing satellite services include international communications and data transfer; global news, sports, and entertainment; weather and climate forecasting; wildlife tracking and environmental monitoring; position and navigation services; precision farming; urban and rural planning; public safety; distance learning; telemedicine; and inventory, fleet and resource management. Comprised of space-related companies, entrepreneurs, government agencies, and academic research programs, California space enterprise provides or supports the delivery of these and hundreds of other space-related products and services.

CSA is designated, by the State of California, as the "California Spaceport Authority." In this capacity, CSA is charged with facilitating the development of California-based spaceports with lift capability for existing or emerging spacecraft. In addition, CSA elicited participation by stake holders statewide to contribute to the development of a space enterprise strategic plan in 1998, 2004, and again in 2006. Many of the initiatives identified in those plans were established to address issues faced by space enterprise companies and were symptomatic of competitiveness issues faced by U.S. industry at large. As a result, these same issues were identified in the DOL request for proposals for the WIRED Initiative.

The WIRED RFP was a great fit for many of the initiatives identified in CSA's strategic plan: technology innovation and entrepreneurship, manufacturing support, and talent development. On February 1, 2006, the California Innovation Corridor proposal led by CSA was announced as one of 13 regional proposals nationwide to be awarded a three-year $15 million federal grant.

THE CALIFORNIA INNOVATION CORRIDOR

So it was that a small California nonprofit with fewer than 12 employees began the WIRED journey of garnering the support of more than 100 partners and supporters to form the "California Innovation Corridor" (Corridor). A "region of regions" composed of 13 contiguous counties from Alameda in the North to San Diego in the South, each supporting three strategic transformational goals of 1) innovation support, 2) industrial rejuvenation, and 3) talent development of the workforce for the 21st Century global economy. The shared vision of the integration of education, workforce, and economic development systems and innovation strategies into a regional framework became the basis for formulating the overarching goal of the California Innovation Corridor: "Optimize the entire corridor for innovation and 21st Century workforce competitiveness (Regional adaptation of national intention, from "America's Task," page 7 of *Innovate America*).

Figure 1. The California Innovation Corridor Region

The vision of the California Innovation Corridor partnership incorporated what the DOL termed "transformational change" and is intentionally planned to be institutional, organizational, and behavioral while addressing resource alignment, barriers, and unintended consequences.

Characteristics of the integrated transformation are:

- Purposeful innovation and innovation support,
- Regional continuity,
- Business-driven approach with business engagement,
- Anticipation of market trends,
- Enhancement of relationships and interfaces that define a common language and a set vocabulary for innovation, and
- Relevant data knowledge collection and dissemination.

The California Innovation Corridor WIRED initiative serves as a catalyst to accelerate momentum of a decade

of transformation across the corridor in a transformational environment impacted by contributions from information technologies, biotech, nanotechnology, space technology, and advanced manufacturing. The driving inspiration behind the 25 projects outlined in the California Innovation Corridor initiative was threefold:

1) Industry and stakeholder inputs to the 2004 California Space Enterprise Strategic Plan;
2) The National Innovation Initiative as articulated in *Innovate America,* a 2005 call to action by the Council on Competitiveness; and
3) The principles and recommendations outlined in *Rising Above the Gathering Storm*, a 2005 Congressionally-commissioned study by The National Academies, along with other relevant studies, materials, inputs.

In the California Innovation Corridor WIRED proposal, three strategic goals were identified – Innovation Support, Industrial Rejuvenation, and Talent Development. These three goals or "centers of gravity" are all characterized by the transformational integration of workforce, economic development, and education with outcomes for transformational goals that are relational, transactional, or both. Some of the 25 WIRED projects are more focused on economic development with a workforce element, some workforce with an economic development element, and some educational with both a workforce and economic development aspect. The three strategic goals follow:

1) Innovation Support – *"Create new companies and high-skill, high-wage jobs by designing a replicable and sustainable "innovation support architecture" to increase innovation and entrepreneurship"*

Strategic Transformational Goal (1.0):
Create an atmosphere in which the culture, environment and systems are characterized and driven by robust innovation and flourishing entrepreneurship.

Current State:
Ad hoc innovation and entrepreneurship.

Desired State:
Purposeful support for innovation and entrepreneurship, where an innovation-driven ecosystem aligns resources, enhances knowledge, accelerates linkages, and integrates programs and support across domains and jurisdictions throughout the California Innovation Corridor.

Following are the seven CIC WIRED projects that support innovation:

- Creation of an Innovation Driven Economic Development Toolkit.
- Development of 21st Century Job Profiles to define future workforce skills and needs.
- Compilation of a California Innovation Asset Inventory to foster innovation and entrepreneurship.
- Support of entrepreneurial companies to identify best practices that lead to product or services commercialization.
- A pilot program set to identify and replicate an existing successful model of technology transfer from a university into the business community.
- Identification of a new model for student payload ride share on military space lift (currently American student payloads use Russian or other foreign launch support).
- Development of a Workforce Investment Board Toolkit focused on identification of best practices and support of entrepreneurial companies.

2) Industrial Rejuvenation – *"Improve the international competitiveness of the region's supply chain by developing and executing a "Smart Supplier Strategy" that supports manufacturers, small businesses and entrepreneurs in adapting to the global manufacturing transformation"*

Strategic Transformational Goal (2.0):
Ensure common "smart supplier," competitiveness and enterprise-driven outcomes across supply chain provider/support network.

Current State:
Lack of continuity in program/service outcomes across Corridor's supplier provider/support system.

Desired State:
Continuity of program/service outcomes across Corridor's supplier provider/support system.

Following are the four Corridor's WIRED projects that support the industrial rejuvenation strategic goal:

- Identification of high priority supplier training needs through survey, forums, and industry input.
- Characterization of "Smart Supplier" competitiveness skills.
- Outreach to companies regarding resources that support "Smart Suppliers" within the Corridor.
- Development of an industry driven community college Manufacturing Technician Training Program within the Corridor.

Former Apollo 11 astronaut Buzz Aldrin sits with a crowd of children attending the Robotics competition that ran concurrently with the Regolith Excavation Challenge. CSA co-sponsored the challenge with its educational arm, the California Space Education and Workforce Institute. It was a day for young and old.

3) **Talent Development –** *"Accelerate development of a highly skilled 21st Century talent pool by creating pilot projects and activities capable of supporting a continuum of math, science and engineering education (K-U), and lifelong learning relevant to the 21st Century worker"*

Strategic Transformational Goal (3.0):
Integrate consideration of current and future industry enterprise needs into workforce and educational planning and policymaking.

Current State:
Systems are not aligned with "real world" needs, not pro-active in responding to global change, system/enterprise metrics not aligned, lack of continuity across systems.

Desired State:
Responsive, flexible education/workforce systems which anticipate and respond to global market changes, workforce needs with continuity across systems.

The 25 California Innovation Corridor projects that support talent development include the following:

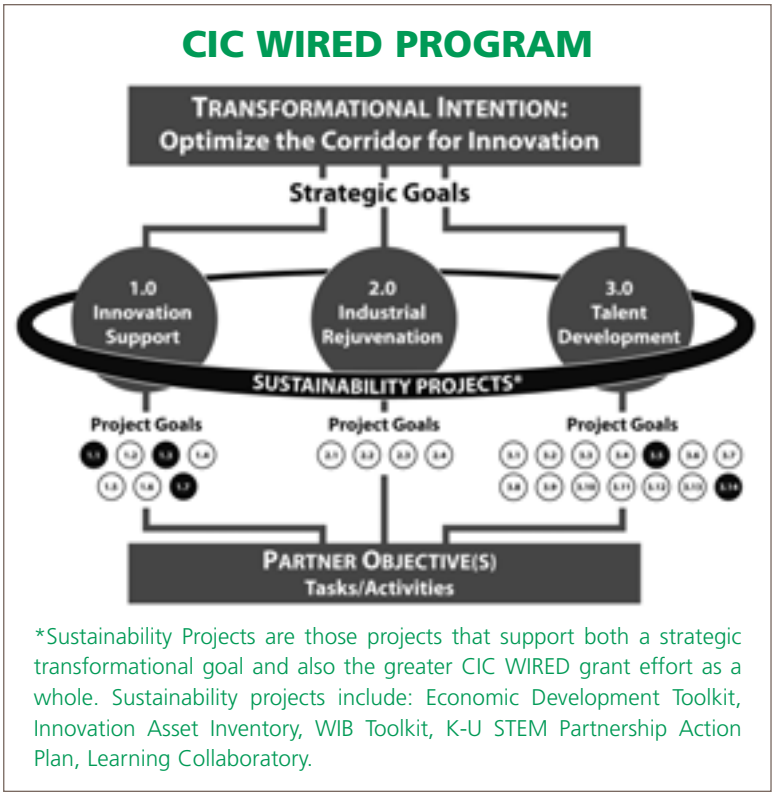
- Compilation of a Workforce Skills Analysis of 200 companies.
- Development of a Space Industry/University Consortium.
- Advancement of space related experiential university internships and mentoring programs.
- Development and execution of an outreach program to businesses regarding systems engineering training programs throughout the Corridor.
- Organization of appropriate high-level stakeholders to develop a statewide STEM (Science, Technology, Engineering and Math), education collaborative action plan.
- Creation and implementation of science & math middle and high school teachers institutes.
- Origination of an industry driven training program to retrain dislocated software specialists for aerospace related computer science work.
- Orientation of university and graduate advisors to innovation oriented acumen through the establishment of an industry mentorship link resulting in accelerated student transition from academia to science and engineering fields.
- Advancement of the Project Pipeline/Troops To Teachers recruitment and accelerated credentialing of math/science teachers.
- Establishment of a model university and high school mentoring program.
- Foster a community college industrial technology-based degree in Mechatronics.
- Produce real-world curriculum for educator conferences focused on STEM education and space science.
- Creation of the virtual California Space Center – a web-based research, education and workforce collaboratory using participatory internet technology to attract youth interest and demonstrate relevance of STEM disciplines.
- Building a "Learning Collaboratory" of training and best practices on innovative approaches to partnerships in support of an innovation ecosystem.

A full description of the California Innovation Corridor's 25 projects can be found online at www.californiaspaceauthority/org/wired.

Transformation fostered through the California Innovation Corridor WIRED grant award will be driven and sustained through the execution of five key "SUSTAINABILITY PROJECTS". Each Sustainability Project, while subordinate to one of the strategic transformational goals, also links to projects/outcomes in other strategic transformational goals, thereby providing continuity and sustainable change across the Corridor grant activity. These five projects are:

1) Innovation Driven Economic Development Toolkit,
2) Innovation Asset Inventory Across the Corridor,
3) Workforce Investment Board Toolkit Focused on Innovation and Entrepreneurial Companies,
4) K-U STEM Collaborative Action Plan, and
5) Learning "Collaboratory" - Compilation of Workforce Investment Board Best Practices and Lessons Learned.

Due to the breadth and complexity of implementing the California Innovation Corridor (CIC) WIRED grant proposal, the Project Integration Protocol, (PIP), was developed to serve as a background and "big picture" orientation for developing and executing each of the partners' scopes of work. Each of the 25 project teams within the grant were asked to articulate a "project goal"



*Sustainability Projects are those projects that support both a strategic transformational goal and also the greater CIC WIRED grant effort as a whole. Sustainability projects include: Economic Development Toolkit, Innovation Asset Inventory, WIB Toolkit, K-U STEM Partnership Action Plan, Learning Collaboratory.

to align with the Strategic Transformational Goal under which the project lies. Each partner organization articulated specific objectives aligned with the project goal for which it serves as a project team member, with many partners on more than one project team.

To support the development and implementation of the scopes of work of CSA's partners, the partner role is shown in context in the diagram on the previous page.

The project integration protocol ensured that each of the partners understood how their involvement on a project rolled up into one of the three strategic goals and into the overarching transformational intent. This was key to developing the 45 separate partner contracts and 89 statements of work that provided the framework of the 25 projects constituting the California Innovation Corridor WIRED Initiative.

COLLABORATION THROUGH PARTNERSHIPS

One of the reasons why the CSA WIRED proposal was successful stems from CSA's long history of developing and supporting collaboration through partnerships. CSA celebrated its ten-year anniversary in 2006. As a nonprofit, most of the work accomplished relied on the support of unfunded partners from a variety of sectors, including industry, government, academia, education, and others. Most of the partners selected to submit a letter of commitment to participate in the WIRED California Innovation Corridor proposal to DOL were former participants in the CSA collaboratives that developed the strategic plans or worked with CSA on other initiatives.

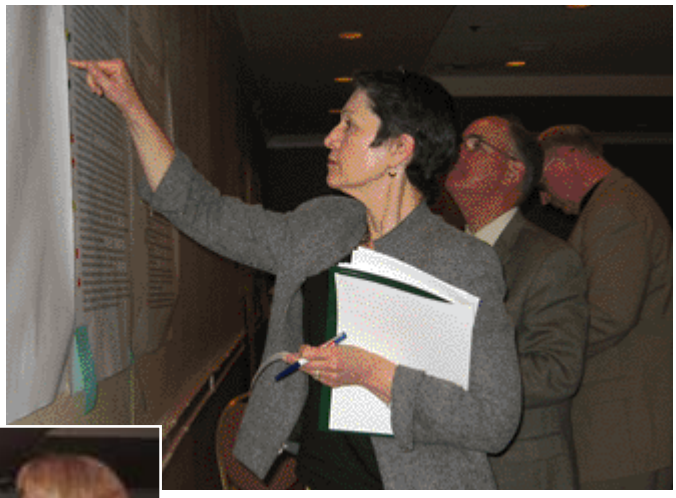
CSEWI Executive Director Deb Hirsch engages one of the attendees, Mike Gallo, at the recent STEMCAP forum.

Members of the Boards of Directors for both CSA and its educational arm, the California Space Education & Workforce Institute (CSEWI), are actively involved in the grant implementation, either as funded partners or providing in-kind support to industry advisory boards as well as the STEM (Science, Technology, Engineering and Math) Collaborative Action Plan. CSA in coordination with the partners who helped to develop the proposal, identified other key players who brought needed expertise and/or relationships to generate successful completion of the grant goals.

Such collaboration is predicated upon the fact that the partners can identify the alignment between their organizational goals and the goals of the grant. As the lead agency, CSA must also recognize that partner priorities may shift over time and other initiatives may distract them from completing their commitments under the grant within the time frames stipulated. As the lead agency, CSA must constantly monitor project progress and coordinate the efforts of all team members on a project.

The most prominent hurdle of the grant initially was the daunting task of getting all of the partners on contract. This required that the partners on each of the 25 projects come together, agree on the common goal of the project, and develop a work plan that identified the milestones, time frames, and deliverables of the project. In some instances, many of the team members had similar tasks but in differing regions of the corridor.

For example, the inventory of the California innovation assets required that each of the 12 partners identify the innovation assets in their particular communities. However, collectively, they agreed upon the common content of the four types of profiles to be completed for universities, research labs, and research and development companies. This project, like all of the Corridor 25 projects, has a project team lead and is assigned a liaison from CSA or CSEWI to ensure coordination of the team and successful completion of the project goals. Each region is gathering data on the regional innovation assets to be input into a common data base which will serve as a reservoir of all data for future use.



Educators contributed greatly to ideas on how to solve the STEM crisis.

This project will ensure that the partners involved make contact with key innovation assets and begin to develop relationships to foster future innovation development and commercialization. The inventory will also serve as one of the first tools of the economic development tool kit.

But other projects necessitate that various partners have differing but supportive roles in the successful completion of the project. An example would be that of the STEM Collaborative Action Plan where project team partners have specific roles to generate the necessary support of the key California entities including industry

Regolith Excavation Challenge drew a wide range of media coverage including the Discovery Channel, BBC Radio, and the New York Times Magazine.

Much of the work of the California Innovation Corridor projects will be based upon developing new relationships and launching innovative demonstration projects without proven track records. In some respects, we are learning as we go and developing new processes to enhance the prospects of successful completion, often times establishing new processes as we go.

representatives, University of California, California State University, community colleges, and representatives of the K through 12 system and informal science which includes museums focused on science and technology. A steering committee of both project team members and unfunded politically key players has been brought together for the first time to craft a plan to engage all levels of the California educational system in support of a continuum of math, science, and engineering education with an implementation plan.

On this particular project, team members have differing roles but collectively their activities must come together in support of developing the action plan. This project alone has the potential to generate monumental change across all sectors of the California educational system in support of developing the skilled workforce needed to maintain and support the California and U.S. economies into the 21st Century.

Much of the work of the California Innovation Corridor projects will be based upon developing new relationships and launching innovative demonstration projects without proven track records. In some respects, we are learning as we go and developing new processes to enhance the prospects of successful completion, often times establishing new processes as we go. Part of the excitement is associated with identifying new opportunities not previously anticipated and remaining flexible enough to take advantage of those opportunities. The development of new partnerships across the Corridor and the convergence of ideas and strategies will help to support development of innovative thought leadership.

However, this must be tempered with maintaining the focus of the overall success of the grant and not allowing "scope creep" to consume the time and energies of the teams. To ensure that the projects stay on track and meet stated milestones within specific time frames, CSA project liaisons are responsible for monitoring project progress and driving success of the project teams.

COMMUNICATING TO ENSURE PROJECT SUCCESS

A major factor to facilitate the likelihood of success is communication – among CSA, team members and partners; among teams; between leadership and staff; as well as among the DOL, the State of California Employment Development Dept. (EDD) and CSA. The DOL has funded the Collaborative Work Space to allow each of the 13 WIRED regions nationwide to share project information. In addition, CSA is utilizing project management software to track grant and project progress.

There is also a need to showcase all the activities taking place among the more than 60 partners in 13 counties on the 25 projects on which they are working. Their tasks and activities - forums, presentations, round tables, panels, interviews, surveys, events, assessments, training modules, etc. - need to be captured in a visual or descriptive way.

The "stories" inherent in the California Innovation Corridor WIRED grant achievements and successes will be accessible to potential sustainability funders, to the general public, to partners of like projects, even to WIRED colleagues working on sister projects.

To develop the website and populate it with data, CSA prepared a request for proposals, advertised it, and evaluated applicants against the stated criteria to hire the best qualified entity to:

1) Create a Web accessible database/web presence that contains profile information on the California Innovation Corridor WIRED grant projects, tracks their accomplishments through the grant cycles and highlights successes and best practices for sharing across the country;
2) Facilitate the leveraging of WIRED grant dollars with other private investment to increase the effectiveness of the program and ensure sustainability of the grant initiatives; and
3) Help to create a community-of-practice within the WIRED grantees to share knowledge that will help each grantee to become more successful. The website

is currently under construction and content from the 25 project teams is being collected. Capturing all of the ongoing success stories and posting them on the website for all partners, supporters and potential funders to access allows sharing of information across all levels of the 25 projects as well as the leadership of the DOL, the EDD, and CSA.

IMPLEMENTATION

The initial phase of the California Innovation Corridor WIRED grant was devoted to building the structure needed to get all of the 42 funded partners on contract and launching the 25 projects. Now that the partners are on contract and the project teams have begun their work, we are already seeing tremendous positive progress and in some cases with the evolution of products to another level. Following is a summary of the key developments to date from a sampling of the 25 projects underway.

INNOVATION SUPPORT

Project 1.1 (Innovation Driven Economic Development Model) Corridor partner and project lead, (San Francisco) Bay Area Science and Industry Council (BASIC), whose region includes the Silicon Valley, engaged a contractor to develop the Innovation Driven Economic Development Model. Collaborative Economics, which also served as a key consultant on the state's Regional Economies project and cluster development, began work in May. Current planning involves integrating the Corridor Innovation Driven Economic Development Model into the state's economic strategy, ensuring sustainability of the work accomplished while fostering integration into the state efforts.

BASIC also hosted an Innovation Network Roundtable last April to identify key emerging patterns and drivers of the next wave of innovation. Over 30 repeat innovators and thought leaders, including representatives from companies like Hewlett-Packard and Google, shared ideas about patterns of innovation, the power of collaboration and networking, and implications for future success. The results of this work are now being used to develop insight and content for the Innovation Driven Economic Development Model.

DOL WIRED technical assistance consultant, New Economy Strategies, completed research on best practices across seven global innovation regions. A comparative gap analysis of the best practices of these regions to the California Innovation Corridor with policy recommendations is in development. This too will become another tool in the toolkit.

Bringing the global marketplace to the Corridor, international component of Project 1.1, included CSA facilitating an International Business Matchmaking program where 25 companies participated in face-to-face meetings resulting in the facilitation of 16 email introductions and a request for quote. California companies were also connected with Corridor partner El Camino College's Center for International Trade Development (CITD) resources.

Project 1.3 (Innovation Asset Inventory) The completion of the one-year Innovation Asset Inventory project has significantly enhanced partner awareness of the innovation assets in their regions and will inform the Innovation Driven Economic Development Model/Toolkit in Project 1.1. The Project 1.3 team completed over 250 profiles of innovation-related companies, universities, federal labs, military installations, and research centers. Technical assistance (TA) provided partners by California Connectory principals provided much-needed orientation to the value, impact, and criticality of understanding the needs of the regional innovation community. A common understanding of "innovation asset" proved to be the lynch pin in coordinating this effort.

The final California Innovation Corridor (Corridor) Design Document for the Corridor portal of the California Connectory was completed and will be deployed as part of Project 1.1. Work on the Corridor Portal on the Connectory platform continues, with the integration of GIS/mapping capabilities progressing. Plans are underway to expand the Innovation Asset Inventory to capture all assets across California and across the nation with other WIRED regions expressing interest in replicating this work. The value lies in all the assets residing in one platform that is updated annually to ensure that the data is fresh and useful.

Project 1.4 (Replicable Training for 40 Innovation-based Entrepreneurial Ventures Demonstration Project) To launch this project, the project team hosted the California Tech 100 event on April 24-25, with top level members of the governor's cabinet participating from the CA Labor and Business, Transportation and Housing Agencies. In addition, the Governor's California Commission for Jobs and Economic Growth presented the California Innovation awards to 15 top companies from a list of 300 nominated, of which 75 were recognized as California Innovation "All-Stars" at the event dinner.

The Sherman Oaks 5th Grade class in Campbell, CA, looking forward to sending up their PearlSats in the upper atmosphere. Balloon flights featuring PearlSat payloads are a significant success story for fostering elementary science interest.

The project team was led by the San Diego East County EDC, which coordinated numerous panels and workshops, including five sessions featuring government programs. The multi-faceted event featured entrepreneur "boot camp," angel seminar, networking, all-star competition, dinner and a "Ballroom Blitz" showcasing 35 entrepreneurial venture snapshots for angel consideration. Next steps for the project include tracking entrepreneurial companies against a set of progress indicators and inputting the data into an economic impact software provided by WIRED partner Southern California Edison to determine the return on investment of these companies. A white paper and event template are being produced and will be shared as a tool for inclusion in the Project 1.1 toolkit.

Project 1.5 (Joint University Innovation Model) Significant progress toward "immersion" of university faculty and students in innovative industry environments has been made. In cooperation with the resident Anderson Graduate School of Management, the University of California, Riverside (UCR), the team developed a site visit questionnaire. Three site visits of innovative companies were conducted in southern California, with a workshop/seminar on methods and early findings presented as part of UCR's first TechHorizons Conference May 16, 2007. Participants have concluded that it is important that universities remain open to risk and failure and encourage innovation and entrepreneurial effort.

Project 1.7 (Workforce Investment Board Toolkit) Agreement was reached to organize the Toolkit to identify successful WIB practices in strategic planning for the development of local workforce policy. Key elements of the Toolkit have been identified, with sections on science and the economy already researched and drafted. Four key roles of WIBs have been identified: 1) convener, 2) workforce intelligence, 3) broker, and 4) community voice. The Toolkit draft is scheduled to be presented at the California Workforce Association (CWA) Meeting of the Minds symposium in Monterey in September. Project lead, California Council on Science and Technology has collected science and industry data on California's competitive position. The Toolkit includes six case studies to date.

INDUSTRIAL REJUVENATION/SUPPLY CHAIN COMPETITIVENESS

Project 2.1 (Characterization of Supply Chain Transformation and Identification of Priority Supplier Training Target Areas) After much research, dialogue and insight from multiple representatives of the Supply Chain Industry Advisory Group convened for this initiative, the Supply Chain Transformation Survey was developed and released in April. The purpose of the survey is twofold: 1) to be used to help educate suppliers that a supply chain transformation is in progress; and 2) identify how suppliers are performing during this transformation. CSA, Raytheon, Northrop Grumman, and California Manufacturing Technology Consulting (CMTC) provided major inputs to the Antelope Valley College-produced survey which will be used to drive a pilot project under Project 2.2.

Project 2.2 (Common Learning Outcomes Across the Supply Chain Provider Network) The Supply Chain Transformation Survey was distributed, targeting every level of the supply chain. A Supplier Resources Web Page has been developed to support survey and research efforts to identify training gaps and resources for an eventual supply chain transformation training matrix and white paper. Preliminary analysis of survey data being received endorses the need to develop training and program opportunities to support common smart supplier learning outcomes. Literature review on supply chain transformation is in progress and a Supplier Forum is scheduled for October to announce the initial findings identified by the survey.

As part of a national Manufacturing Community Transformation pilot project that is being led by a partnership with DOL, the National Association of Manufacturers (NAM), and National Council for Advanced Manufacturing (NACFAM), CSA is working with Corridor partner CMTC to use the supplier survey as the basis of a supplier assessment. It will reside on the InnovateCalifornia.net website and provide suppliers the opportunity to evaluate themselves in a self-assessment process and then point them to resources on a supplier resource page on the website.

TALENT DEVELOPMENT

Project 3.1 (Workforce Analysis on 100 Key Entities) This project was designed to intentionally create innovative partnerships between WIBs with EDOs to identify future workforce skills in predefined industries to 1) develop relations between workforce development and economic development entities, and 2) develop relationships with industry to facilitate the development of industry driven programs addressing the future workforce needs. The State Labor Market Information Division (LMID), an unfunded partner, is providing staffing patterns (existing and projected employment) for each region's three "top" industries, with "top" being determined through analysis of nine consensus-based criteria, e.g., a location quotient of 1.3 or greater. LMID is also providing company data and contacts with EDO and WIB partners, then arranging quantitative and qualitative interviews with key industry corporation executives.

Project 3.5 (STEM Collaborative Action Plan-STEMCAP) The Science, Technology, Engineering and Math Collaborative Action Plan (STEMCAP) is a unique project designed to bring together all diverse stakeholders working STEM issues. The STEMCAP is envisioned as a handbook of best practices, model programs, and content to be used by STEM practitioners, funders, and

supporters to advance the production of STEM students, graduates, teachers, professors, and mentors, leveraging resources of education/academia/industry/informal science. A key achievement was recruiting a high-profile Steering Committee of 20+ members, including representatives of the University of California president's office, the chancellor's offices of California State University and the community colleges, along with significant industry participation to ensure an industry-driven approach.

The May 19th STEMCAP Forum and Working Group Session brought together 90 educators, industry and workforce stakeholders, as well as representatives from two national organizations interested in the project: National Assn. of State Universities and Land Grant Colleges (NASULGC) and National Assn. of System Heads (NASH). The focus of the STEMCAP will include Recruitment/Retention, Relevant Curriculum, and Seamless Transitioning across the entire California educational system. Every day, new collaboration targets, partners, and opportunities are being identified, making the STEMCAP as a sustainability project a viable means of creating more STEM students, teachers, and mentors statewide.

A secondary outcome, but also valuable product, of this project is the STEM Inventory of best practices of programs in place across the nation, arranged and organized in a searchable, user-friendly format for students, teachers, parents, and anyone else interested in finding a STEM program.

Project 3.7 (Retraining of Dislocated/Unemployed Software Specialists/Software Engineering for Aerospace and Defense Applications Certification) The first session of the four-month University of California Santa Cruz Extension certificate program began in April. Fifteen students have entered the program which includes guest speakers from corporations like Rockwell-Collins and Lockheed Martin, helping participants to understand the aerospace/defense job market, successful job search strategies, identification of jobs for which they were qualified, tailoring their resumes for aerospace/defense, and identifying skills gaps. Two students have already been successfully transitioned from the unemployment rolls to employment in aerospace.

Project 3.10 – (The Stanford Model Mentoring Program) Sherman Oaks elementary school in Campbell, California, had over 300 PearlSats in Stanford University's May 11th balloon flight which reached over 90,000 feet. Sherman Oaks is a charter school with a significant Latino population. Classes are taught half-day in English, half-day in Spanish. Mr. Alfred Tadros, Director, NASA/Civil and DOD Programs, Space Systems/Loral, is the Sherman Oaks mentor working primarily with fourth grade students. The balloon was launched from a pad near San Jose, recovered near Stockton, for about a 120-mile three-hour flight.

Balloon flights featuring PearlSat payloads are a significant success story for fostering elementary science interest. Mentors have met with teachers to evaluate initial WIRED efforts and begin planning 2007-08 school year activities.

Project 3.13 (CA Space Education Center) The virtual California Space Education Center (CSEC) is a web-based research, education, and workforce collaboratory that uses the latest community building, or "participatory" internet technology used by today's youth to increase interest and show relevance of STEM disciplines and expose students to consecutive steps in the STEM career pipeline. It also provides opportunities for students and potential entrepreneurs to become involved in a community of participatory learning focused around STEM careers. The CA Space Education and Workforce Institute (CSEWI) is now in the concept and development phase of the virtual center. This phase includes organizing the process of input from collaborators of its featured programs – the NASA Centennial Challenge and the Zero South project, designing a user-friendly, intuitive navigation of the Center's information and determining the physical look of the outreach site that conveys the right message to its target audience, K-16 students, educators, and those interested in STEM subjects.

An example of what a string of PearlSats looks like before being linked up with a balloon.

University students help prepare a high-altitude balloon for the children at Sherman Oaks Elementary.

In May, CSEWI hosted the NASA Regolith Excavation (Centennial) Challenge innovation event, with co-sponsor California Space Authority. The Regolith Excavation Challenge ran throughout the day concurrently with the 1st Annual California RoboChallenge that included nearly 40 teams of students K-12 using Lego© Mindstorm® kits. The students were able to observe the excavation machines and their inventors during the excavation challenge, In addition, Apollo 11 astronaut Dr. Buzz Aldrin; Dr. S. Pete Worden, director of NASA

Ames Research Center; and Col. Stephen Tanous, USAF, commander of the 30th Space Wing, were featured speakers.

CONCLUSION

Our focus now is to integrate the major outcomes and lessons learned to date across the projects to ensure that all are leveraging opportunities and benefiting from the work completed. We have created a communication strategy that we are beginning to implement to foster integration of the projects. Webinars, project leads, and all partner meetings are maximizing the impact of the project outcomes. All of the CA Innovation Corridor projects are posted on the InnovateCalifornia website – www.InnovateCalifornia.net, which relates the latest information on project progress and new developments.

From the accomplishments achieved to date, we have concluded that the alignment of the education, workforce, and economic development systems is critical to ensure long term and transformational change needed to leverage resources and develop the skilled workforce needed for future U.S. competitiveness. How we develop the strategy to accomplish such an arduous task will be incorporated into our work as we complete the WIRED grant.

In the mid-19th century, America's westward expansion recognized California as the "Golden State," a title born less from its gold deposits than to its great opportunities for anyone looking to build a brighter future. Hope is what drove the pioneers westward. Hope is also what drives our 42 organizations within the California Innovation Corridor today.

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Collaboratively as a living network, we are seeking new ways to do business, fresh ideas to organize manufacturing and supply chains, and dynamic approaches to energize workers and students towards attainment of higher technical skills. The often fractious and hierarchical industry, workforce, education, and economic development systems are beginning to shift towards an understanding that through collaboration we can leverage scarce resources and through collaboration, build a better tomorrow for California and the nation.