



A Talent-Based Strategy to Keep Connecticut Competitive in the 21st Century

Growing, Using and Enriching Connecticut's Talent Pipeline



Prepared by the Connecticut Office for
Workforce Competitiveness

February 2007



Contents

Responding to the Challenge	2
A Strategic Approach for Building Connecticut's 21st Century Talent Pipeline	3
Steps Taken Toward Framing a Talent-Based Strategy	4
Strategic Priorities and A New Organizational Approach	6
The Talent Agenda	
• Growing Talent	8
• Using Talent	10
• Enriching Talent	12

GOVERNOR M. JODI RELL'S CHALLENGE



Since the first day I took office, the issue of growing jobs has been a top priority for my administration.

The skilled talent that once fueled our manufacturing economy and that was once the hallmark of the Northeast is now readily available in other states and other countries around the world. As technology has become more advanced, the skill demands of employers have risen. And they

Call To Action

will keep rising, because those higher skills lead to the innovation that, in turn, leads to higher levels of productivity. To complete the cycle, new products and innovations lead to new and expanded companies and to a need for skilled people to work in them. That is the recipe for growing jobs, and talent is the important ingredient that drives the process.

But the issue of job growth is much more complex than just helping business and industry retain and create jobs in Connecticut, and more than providing incentives to help businesses move jobs into the state. A critical part of job growth is long-term economic development. We need to anticipate and plan for the future, and we need to do it now. The basic question is: can our educational systems keep up with the knowledge economy's demand for skilled talent? The answer is—they have to. And I know they can.

From opening remarks, Call To Action Symposium, September 27, 2005



Responding to the Governor's Challenge: A Talent-Based Strategy for Economic Growth

Connecticut is confronting new challenges to its economic competitiveness and quality of life. The foreign competition in lower cost manufacturing is being intensified by a far more serious threat—competition for skilled workers and technology know-how reaching nearly every industry and business function.

The bar for performance is being raised. The ultimate competition is now for *talent* able to meet high levels of productivity and advance innovative new products and markets. Those workers who lack education or skills will struggle to keep pace. And those state and regional economies lagging behind in the overall skills of their workforces will face declining economic fortunes.

Talent touches everyone and requires a broad spectrum of skills. It represents not only the general skills of our workforce to produce top quality goods and services quickly and efficiently, but the specialized capacity found among world-class scientists and engineers to invent, advance discoveries and develop new technologies, as well as entrepreneurs and managers to bring those technology advances to the global marketplace.

“The physical proximity of talented, highly educated people has a powerful effect on innovation and economic growth—in fact, the Nobel Prize-winning economist Robert Lucas declared the multiplier effects that stem from talent clustering to be the primary determination of growth. That’s all the more true in a post-industrial economy dependent on creativity, intellectual property and high-tech innovation.”

Richard Florida, “Where the Brains Are,” *Atlantic Monthly*, October 2006, page 35

Simply put, talent development is not just about creating more Ph.D.s—it is about technicians, machinists, quality control, nurses and, most importantly, teachers of science, technology, engineering and math (STEM).

To remain competitive in the 21st century, Connecticut must renew its efforts to ensure a talent pipeline that must be all-inclusive, diverse, and operate as a seamless continuum, encompassing the state’s early childhood education efforts at one end and world-class

research and development and entrepreneurship at the other end.

Connecticut is at Risk

Even Connecticut, which is widely recognized for its highly educated and skilled workforce and high level of productivity and industrial research and development, is at great risk. We face a clash of demographics and economics that present a huge challenge for the future.

- **Connecticut is aging.** The proportion of Connecticut workers over the age of 55 is the 7th highest in the nation. (*The State of Working Connecticut, 2006, Connecticut Voices for Children*)
- **Connecticut’s future young workers are expected to be less prepared for the 21st century careers than those they are replacing** in large part because nearly half our future workforce will be coming out of the state’s urban centers where a significant and stubborn achievement gap persists. (*New England 2020: A Forecast of Educational Attainment and Its Implications for the Workforce of New England States, June 2006, A Study Commissioned by the Nellie Mae Education Foundation*)
- **Connecticut’s students are not making the grade.** Less than 50% of all tenth graders pass the Connecticut Academic Performance Test in Math, Science and Reading and only 15% of Black and Hispanic students have passing grades. (*State Department of Education, 2006*)
- **Connecticut is already feeling the economic consequences.** The Connecticut Business & Industry Association, in assessing the results of its 2006 industry survey concludes, “With baby-boomers entering retirement age in greater numbers over the next five years, industry identified their growing concern about being able to find qualified workers to maintain future competitiveness. What’s more, the need for skilled workers for current open positions is acute. This could be Connecticut’s most significant economic challenge.”

A Strategic Approach for Building Connecticut’s 21st Century Talent Pipeline

Connecticut must develop an aggressive and comprehensive policy focus on advancing a 21st Century Talent Pipeline that emphasizes these three priorities:

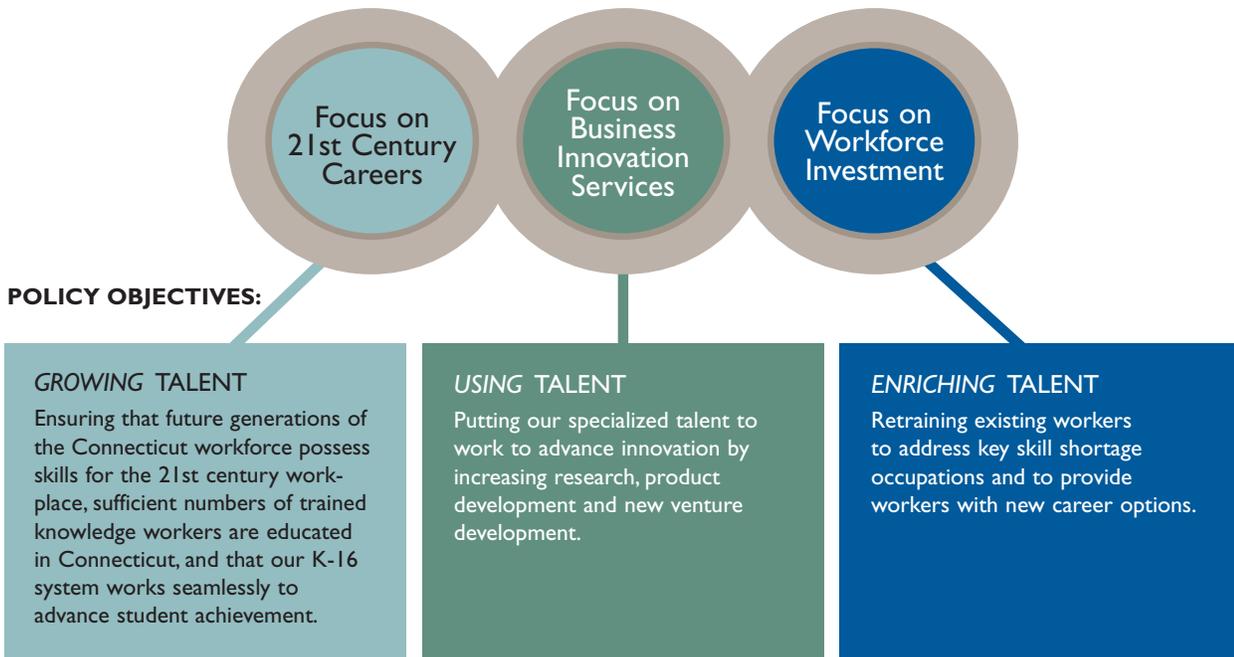
- **Growing talent**
- **Using talent**
- **Enriching talent**

To be successful, Connecticut will have to work in new and smarter ways—breaking down the silos that exist across state agencies, facilitating new government-education-industry-labor partnerships and creating a new culture of flexibility and agility in navigating the “sea changes” occurring within the 21st century global-based knowledge economy.

“Globalization and the emergence of other competitive nations has dramatically raised the bar for performance, creating pressure on those regions, industries, companies and workers who are not prepared to meet the new standards of productivity. Simply being an American does not guarantee a high-wage job anymore as companies allocate more of their activities across locations based on productivity relative to wages...we see rising inequality as the most educated prosper while those who lack education or skills struggle to keep pace.”

The Council On Competitiveness

NEW ORGANIZATIONAL FOCUS:



TALENT PIPELINE:





Steps Taken Toward Framing a Talent-Based Strategy for Economic Growth

Connecticut has taken some constructive steps towards growing, using and enriching its talent pipeline with a goal of producing 21st century talent comprised of high-achieving students, skilled workers, world class researchers and entrepreneurs and business entrepreneurs.

Guiding Connecticut's actions have been strategic studies and broad-based deliberations involving stakeholders from industry, education, economic development and government.

And in just a few short years, in the midst of a national recession, Connecticut can boast of a growing record of achievements.

Setting the Stage...

- February 2004: *Generating the Talent and Innovations for the 21st Century Knowledge Economy: A Report on Connecticut's Technology Preparedness* identified ten key findings about Connecticut's position to succeed in a knowledge economy to engage government, industry, education and labor leaders in a fact-based discussion of where Connecticut now stands and how to ensure our continued success in the future.

Doing the Research...

Several major studies and policy forums undertaken to more closely examine Connecticut's position in the knowledge economy have been released:

- 2005 *Assessment of Connecticut Core Technology Competencies*, which identified key technology platforms that cut across Connecticut industries and universities that are critical to the future of the state's competitiveness.
- 2005 *A Strategic Assessment of Connecticut's Position in Nanotechnology and Action Plan*, examined an emerging field that promises to usher in the next industrial revolution.
- 2005 *Connecticut's Technology Transfer and Commercialization Needs*, which highlighted leading activities across the nation and called for Connecticut to establish an Innovation Network.
- 2006 *Governor's Talent Symposium Series*, undertaken with the support of the Central Connecticut State University's O'Neill Center for Public Policy and Institute for Municipal and Regional Policy, focused on identifying policy issues and strategies necessary to ensure Connecticut's competitiveness in the knowledge economy, including:
 - *Governor's Call to Action* bringing together business and education leaders to discuss the key issues.
 - *CONNVene* to develop a comprehensive plan to advance science, technology, engineering and math skills in K-12 education.
 - *Learning from Others: Ideas, Strategies and Models* bringing best practices to Connecticut.



Actions Taken To Date...

In the 2005 and 2006 legislative sessions, the Governor and General Assembly worked together to enact several specific actions to ensure the competitiveness of Connecticut in the global-based knowledge economy, including:

Growing Talent

- Establishment of a Connecticut Early Childhood Investment Initiative with strong links to education, business, philanthropic, workforce and economic development organizations
- Establishment of Connecticut Career Choices as an ongoing program
- Advancing the Connecticut Education Network (CEN)
- Establishment of a pilot laptop program through the Department of Education
- Establishment of a Connecticut Youth Futures initiative to address the needs of students caught in the K-12 achievement gap

Using Talent

- \$100 million for Connecticut Stem Cell Initiative
- Continuation of the State R&D Tax Credit
- Establishment of the state's Small Business Innovation Research (SBIR) program
- Framing an Innovation Challenge Grant Initiative
- Advancing a nanotechnology plan and action steps
- Establishment of a New Opportunities Fund within Connecticut Innovations
- Provision for developing a plan for a comprehensive Innovation Network

Enriching Talent

- Providing existing workers with assistance to pursue high value career options through career pathways and job funnel initiatives, in the key skill shortage areas of:
 - Medical and health care occupations
 - Science and math teaching
 - Construction trades
 - Precision manufacturing

These efforts to date have a clear and consistent theme—the single over-riding component in any strategy focusing on competitiveness in the global knowledge economy is the availability of 21st century skilled TALENT.

Now Connecticut needs to take the next leap forward. A bold new public policy approach towards implementing a 21st century talent development strategy is needed.



Strategic Priorities and A New Organizational Approach

Strategic Priorities

Competitiveness today is all about 21st century talent—growing it, using it and enriching it. The newly emerging and fastest growing occupational sectors in Connecticut are comprised of knowledge workers—employees whose value to an employer is measured more by what they know, how they think and solve problems, and their ability to communicate, than what they do.

For workers and students, a competitive 21st century talent base is defined in terms of acquiring knowledge to use and apply science, information technology, engineering and math skills, as well as mastering critical thinking, problem-solving and communication skills.

21st Century Talent is:

- *The driver of innovation*
- *The catalyst for invention*
- *The source for new ideas*
- *The engine of efficient production*

In many respects, a talent-based strategy is a reaffirmation of Connecticut's proud heritage of Yankee ingenuity. A renewed focus on developing and supporting a 21st century talent pipeline is once again essential to preserving the state's quality of life. It is time to declare Connecticut "***The Knowledge State.***"

Organizing for Success: Developing New Integrative Organizational Approaches

Government needs to apply 21st century business principles to addressing the issues of jobs and the economy. Business leaders recognized decades ago that the vertical organizations of the past no longer worked effectively in a marketplace characterized by rapid change and global reach. Instead, business has utilized an integrative approach that draws upon and applies resources across organizational boundaries, providing for greater efficiency and effectiveness. Government should employ a similar approach, to build upon the expertise and resources existing in individual governmental agencies to create strategic partnerships and focused public policy.

For Connecticut's talent-based strategy, three new integrative organizational structures should be implemented:

- **A Collaboration on 21st Century Careers for growing talent in Connecticut**
- **A Collaboration on Business Innovation for using talent in Connecticut**
- **A Collaboration on Workforce Investment for enriching talent in Connecticut**

Connecticut should facilitate and foster new collaborations across education and industry to advance talent generation, innovation and skills upgrades.

I. GROWING TALENT

Collaboration on 21st Century Careers addressing pre-kindergarten through post-secondary education as an interconnected system for growing Connecticut's talent base. Improved achievement in literacy and STEM disciplines, better collaboration across levels of education, pro-active articulation, results-based accountability, and a focus on career preparation will be the hallmarks of Connecticut's approach.

The goal will be to build partnerships and put existing resources to better use within state government. Connecticut will facilitate and foster new collaborations across education and industry to advance talent generation, innovation and skills upgrades.

To guide Connecticut's ongoing efforts and to ensure that it stays at the forefront in addressing new issues and barriers that arise in the fast-moving knowledge economy, Connecticut needs a 21st century policy

development capacity informed by multiple sources of data. Currently Connecticut receives workforce, education, demographic and economic information from multiple sources and in varying formats and without the benefit of comprehensive analysis. The 21st century economy is talent-based and requires intelligence cutting across education, labor and economic development that can only be accomplished with an improved data infrastructure.

NEW INTEGRATIVE ORGANIZATIONAL APPROACH



2. USING TALENT

Collaboration on Business Innovation

Services will put Connecticut's talent to work by enhancing business innovation and new product development for emerging and established companies across Connecticut's technology core competency areas. Connecticut will broker assistance with early-stage funding sources, furthering collaborations with universities and supporting matchmaking, networking and other strategies to leverage our industry base towards furthering innovation.

3. ENRICHING TALENT

Collaboration on Workforce

Investment will seek to enrich the skills and career pathways for Connecticut's incumbent workforce and in doing so help reinvent the way employment and training programs are administered and implemented in the five workforce investment areas to be more collaborative and forward thinking.



Theme: Growing Talent

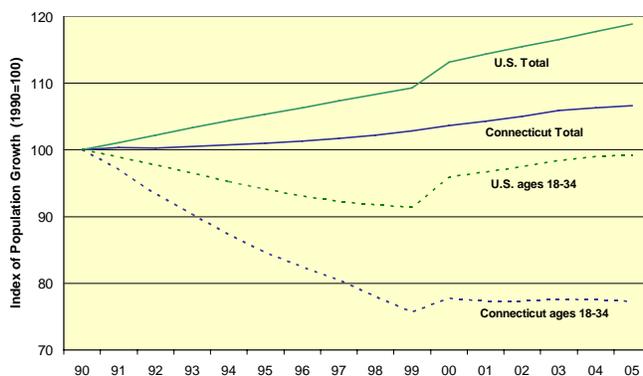
THE CONNECTICUT CHALLENGE

Connecticut's population growth rate has been largely stagnant over the past decade, and most disturbingly, Connecticut leads the nation in the decline of young workers.

- From 1990 to 2005, Connecticut's population grew by 218,000 or 6.6 percent. By comparison, the nation added 47.0 million residents or 18.9 percent.
- The relative loss of Connecticut's young workers is significant. From 1990 to 2005, Connecticut's population aged 18 to 34 fell by 211,000 or nearly 23 percent, while nationally this cohort remained essentially the same, declining by less than one percent.

Connecticut's Lagging Population Growth

CT vs. national total population growth; declines among the ages 18–34



Source: U.S. Census Bureau; Battelle calculations.

Looking to the future, the next generation is not making the grade, particularly in light of the rising standards found among our global competitors.

- At the post-secondary level, the overall levels of graduates have declined in engineering, biological sciences, and physical sciences since the mid-1990s.

- Continued poor performance in reading, math and science courses in K-12 (particularly in urban school districts) is a real danger sign in preparing a 21st century workforce.

Industry and Education Leaders' Insights from Governor's Talent Symposium

Raise student achievement

Connecticut is a highly educated state, but many students perform well below mastery and even below proficiency standards. We must focus on those individuals and help them achieve academic success in literacy and STEM disciplines.

Address urban education dilemma

We are not addressing the needs of students from disadvantaged communities. The goal should be to produce not simply high school graduates but young adults qualified for higher education and for employment.

Mobilization for science, technology, engineering and math (STEM) skills from pre-K to post-secondary

Connecticut is not succeeding at attracting students from vulnerable and underrepresented communities into the STEM fields. Women and disadvantaged students may need specialized assistance, but their full participation is essential to the economic health of Connecticut. We need to attract good teachers to the profession and ensure that they are qualified to teach STEM subject matter effectively and proficiently. In addition, teaching must provide students with tools that will make them successful in real world.

Incentives to study STEM subjects at Connecticut Universities and to remain in Connecticut must be developed and implemented. In addition, support for university programs in STEM must be increased.

Promote business-education-government partnerships

The business community must be a full partner in creating a sense of urgency, defining the mismatch between student skills and business needs, and in upgrading employee skills.

Policy Implications

Make college preparation curriculum the “default” curriculum for all Connecticut high schools.

Advance a statewide goal of “all youth ready for work/college by the age of 21.”

Focus and expand e-learning activities associated with the Connecticut Education Network on the development and distribution of STEM-related content and make available to all school districts through the CEN.

Develop and distribute model STEM core e-curriculum, particularly in math and science, which embeds research-based best practices for use in all school districts in the state.

Pursue the design, development and implementation of a STEM-focused “Virtual Learning Center” for grades 6-12 which will include access to all STEM curriculum.

Develop and increase the number of teachers in STEM-related fields for the K-12 (particularly 6-12) system and community colleges. Consider use of incentives for science, engineering and math undergraduates, employment bonuses, and drawing on the

ranks of Connecticut’s retiring engineers and scientists for second careers through an expansion of the Alternate Route to Certification Program (ARC).

Increase the number of and support for schools focused on the Connecticut Career Choices model for encouraging students to pursue STEM-related careers.

Pursue the recommendations of the CONNvene process to advance a statewide STEM Dialogue and Strategy, including:

- The newly established Connecticut P-16 Council must guide, monitor and ensure connectivity across all of Connecticut’s educational reform efforts.
- Create a statewide network of after-school and out-of-school programs with a concerted focus on encouraging interest and participation by families and youth in STEM activities.
- Provide state support for STEM-based teacher professional development.
- Develop annual improvement plans to assess the degree to which STEM teaching and learning are progressing within each school district in Connecticut
- Encourage the expansion of engineering programs, such as *Project Lead the Way* and *Connecticut Pre-Engineering Program*, across the state and continue ongoing evaluation of their effectiveness.

Best Practice Lesson:

The Public School Forum of North Carolina: Focus on Seamless K-16 System with an Emphasis on High School Performance

In North Carolina, the link between economic development and education has been the primary policy driver since the early eighties. Today, North Carolina finds itself at a critical juncture. The “low hanging fruit” has been picked with rising math and reading scores at the lower grades. There are still stubborn performance gaps confronting the state, particularly at the high school level. Now the focus of activities is on governance and high school reform:

- **Harnessing all of the state’s educational resources through the creation of the Governor’s Education Cabinet to provide a seamless K-16 education system.** This includes the full breadth of the education system—K-12, community colleges, public university system, private colleges and universities—and the Department of Health and Human Resources. The specific goal of the Education Cabinet is to focus the resources of the entire education system on K-12 school improvement, stimulating collaboration instead of competition.
- **Tying high school reform directly to the state’s future economic needs.** In addition to increasing rigor of high schools as a conduit to higher education, North Carolina’s goals are to have 78 specialized high schools with ties to specific economic employment sectors—such as health and life sciences, information technology and coastal studies—and enable all studies to be in driving range of a specialized high school. Accessibility is key to advancing smaller learning communities and creating strong school relationships with students.





Theme: Using Talent

THE CONNECTICUT CHALLENGE

Connecticut is a *high cost* place to do business. The only way for our state to remain competitive is to be a *high value* place to do business. Today, Connecticut enjoys high rates of productivity and innovation fueled by our extensive research and development base found across industry and universities. The ability to be a leader in research and development ultimately comes down to the supply of and utilization of scientific and engineering talent found in a state.

But many global competitors are catching up and Connecticut and other states are facing for the first time global competition in research and development. Of particular concern is that major companies are taking advantage of the massive numbers of well-educated personnel found overseas and constructing true research centers. Rapidly growing nations, such as India and China, are proving to be strong competitors in R&D, and are beginning to attract significant direct investment in R&D, even from major U.S. firms such as Microsoft, GE, and IBM.

Industry and Education Leaders' Insights from Governor's Talent Symposium

Economic leadership depends upon innovation

Economic development is based on value creation which requires constant innovation in today's fast-paced global economy.

Finding Connecticut's niche

It is appropriate to focus efforts on selected high-technology disciplines where Connecticut can be a world leader, building on historical strengths such as precision manufacturing and bioscience.

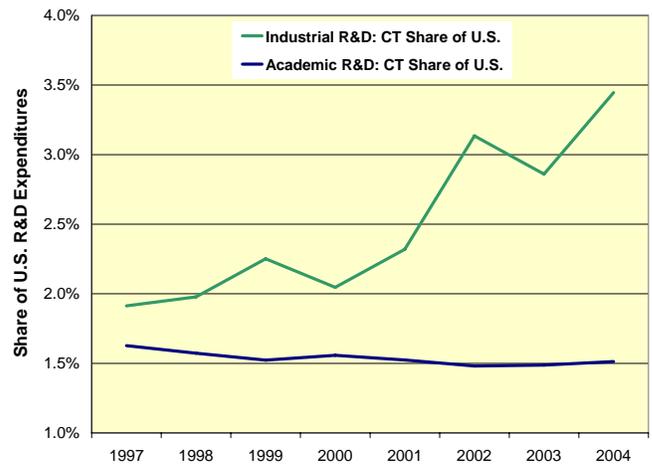
Building a culture of innovation

Innovation is the key to "keeping the engine going." It is necessary to think out of the box and develop the seeds of innovation, and then support them through venture capital and other financing mechanisms.

Available data suggests that Connecticut's standing in research and development is mixed.

While Connecticut remains a national leader in industrial research and development, the situation in university research is more troubling.

Connecticut Industry R&D is Thriving, University R&D is Lagging



Source: National Science Foundation; Battelle calculations.

Connecticut is also slipping in the utilization of its research and development base to support innovation.

- Patent activity is a direct way to measure the base of innovation across Connecticut industry. While Connecticut is a leader in the absolute level of patents per worker, growth of patents is lagging well behind the nation—rising only 5 percent in Connecticut compared to 22 percent for the nation from 1996 to 2005.
- Similarly, Connecticut is not keeping pace in the growth of venture capital—an indicator of investment in high growth potential emerging companies. Venture capital investments in Connecticut from 1996 to 2006 have increased only 56 percent as compared to a growth of 115 percent for the entire nation.

Policy Implications

Invest in the Innovation Challenge Grant Program as authorized by Public Acts 05-198 and 06-187. The Innovation Challenge Grant Program is an important opportunity for Connecticut to build capacity and foster an environment for greater collaboration among and between higher education institutions with business and industry in the vital areas of talent-generation, technology commercialization and applied and basic research. The Innovation Challenge Grant Program offers Connecticut a comprehensive approach to enhancing talent, technology development and innovation that can be tailored to specific strategic technology areas for reinvigorating Connecticut's economic competitiveness, including:

- Nanotechnology—touted as the key driver of the next industrial revolution—to bolster Connecticut's advanced product development capacities.
- Marine and Ocean Research to take advantage of the new technology paradigm of ocean and coastal observation that is essential to taking advantage of growing and emerging ocean-related global markets—from port operations and security to improved fisheries to coastal management.
- Translational Biomedical Research to address a national challenge of how to move ground-breaking bioscience discoveries into effective new cures and treatments spanning therapeutics, diagnostics and medical devices.
- Alternative Energy building on Connecticut's leading position in fuel cell technology and turbine-generated power to further develop a broad cluster of firms, skilled workers, and suppliers involved in advanced energy systems.

Best Practice Lesson:

Georgia Research Alliance: Example of Return on Investment in Research Funding and Unique Approaches to Public-Private Partnership

A public-private partnership dedicated to having Georgia recognized among the top-tier states in the nation with a technology-based economy by 2010. GRA's core strategy is to focus investment on top people in research universities. GRA has recruited 51 Georgia Research Eminent Scholars to date—who in turn attract research funding, attract the best graduate students and generate spin-off companies from their research discoveries. GRA invests in infrastructure for university-based centers of excellence to attract scholars, build critical mass for excellence and advance technology-based economic development.

Other key initiatives focusing on building university research excellence for economic returns include:

- Support for incubator development at research universities;
- Innovative technology commercialization initiative, known as "VentureLabs," to advance high potential research discoveries into new technology company spin-offs;
- Industry-university applied research funding to further collaboration with industry for commercializing research and advancing product development.

Strong record of success: \$600 million of incremental investment since 1990 has led to:

- \$1+ billion in annual research funding generating more than 1,500 research jobs at universities
- 500 Ph.D. and Master's graduates
- 120 companies started employing over 2,000 workers

Increase the availability of early-stage venture capital to address the "valley of death" in moving research discoveries from concept to commercialization by providing state supported seed capital funds, expanded angel investor networks and the use of tax incentives. Capital could support: equity investments, specialized technology facilities loans, and pre-seed proof of concept awards.

Expand Connecticut's Small Business Innovation Research (SBIR) Office into a full service business innovation and commercialization services resource center to include technical assistance to broaden the base of federal R&D funding to industry, enhance business commercialization services and foster industry partnerships in product development across Connecticut's technology core competency areas.



Theme: Enriching Talent

THE CONNECTICUT CHALLENGE

Connecticut’s capacity for economic growth and competitiveness in the global economy will be constrained by the retirement of the “baby boom” generation.

There are not enough replacement workers to fill these positions. At the close of 2006, a survey of industry executives across the state by the Connecticut Business & Industry Association found that two out of three expected it would be difficult to find new and replacement workers for their businesses over the next year. Therefore, Connecticut cannot afford to overlook any sources of talent. This includes at-risk youth who need academic help; adult workers who need retraining; and people with disabilities.

Analysis by Connecticut’s Department of Labor (CTDOL) points to significant annual shortfalls in filling job openings across major science, technology, engineering and math occupations from the base of new graduates in the academic year 2005–2006, including:

- An annual gap of 911 workers across all health care professions
- An annual gap of 1,213 workers in computer and information sciences with bachelor’s and associate degrees
- An annual gap of 212 workers in engineering with bachelor’s degrees

In addition, Connecticut is not generating enough elementary and secondary teachers in the critical skill shortage areas of STEM, special education, and bilingual education.

Many fast growing occupations in Connecticut requiring knowledge of math and/or science are found outside of pure science and engineering occupations and include advertising and marketing, financial analysis and graphic design.

Fast Growing Occupations Requiring Knowledge in Math and/or Science

GENERAL FIELD:	General Mathematics & Sciences	Sales & Marketing	Computer & Electronics	Finance & Accounting
Fast Growth Occupations in Connecticut	Budget Analyst	Advertising Manager	Computer & IS Manager	Accountants and Auditors
	Chemical Engineer	Advertising Sales	Computer Software Engineer	Financial Analysts
	Chemist	Market Research Analyst	Computer Sales Analyst	Financial Manager
	Economist	Public Relations Specialist	Database Administrator	General & Operations Manager
	Registered Nurse	Sales Manager	Graphic Designer	Personal Financial Advisor

Source: CTDOL, Math & Science Knowledge and Skills: Catalysts for Future Economic Growth in Connecticut, 2005.

Equally challenging, Connecticut residents who lack the educational backgrounds and skills to participate in the growing knowledge-based economy face a difficult economic future. Connecticut does produce many jobs for low-skill workers—nearly 20,000 a year according to the latest occupational forecast produced by Connecticut’s Department of Labor. But the salaries for these occupations are often less than \$25,000 a year, far less than what is needed to support a family or even a single headed household in Connecticut.

Industry and Education Leaders’ Insights from Governor’s Talent Symposium

There are more replacement jobs than new ones, which suggests that although innovative technology is important, there is a need to create jobs in other sectors, too.

The issue of career pipelines is critical. We need to show incumbent and prospective workers why investing in education can pay off.

Being competitive involves many factors. Employers need skilled workers, but low labor costs for skilled workers are one important reason for the off-shoring and outsourcing that is taking place. Infrastructure is also critical, particularly broadband capability.

Policy Implications

Establish an ongoing capacity to translate, interpret and communicate data and information across education, employment and economic development data sources. Presently, Connecticut generates workforce, education, demographic and economic information from multiple sources in varying formats without the benefit of a comprehensive and integrated analysis that not only clearly identifies the policy issues but does so in laymen's terms.

Advance Work and Learning Models targeted to "at risk" youth to ensure access to social and work skills, financial literacy and academic competencies. Build on the success of Connecticut's novel program, "*Our Piece of the Pie*," directed at youth in the juvenile justice and foster care system to advance independence and ties to further academic and career development.

Accelerate career options and promote career pathways across industry clusters. Specialized program efforts such as career pathway apprenticeships, work-based adult learning and on-line learning will be used as tools to work with employers to train incumbent workers who want to advance to higher-wage careers and dislocated or transitioning workers seeking to learn new skills and preserve wage levels. Target areas of occupational need will be continually updated based on occupational forecasts. Today these areas of focus include:

- Health care occupations
- Construction trades
- Precision machining
- Science and math teaching

Provide for adult literacy and basic skills development. Given the growing numbers of immigrant groups in Connecticut whose native language is not English, it is important to provide literacy and basic skills courses in collaboration with community-based organizations with linkages to educational providers. Reading is a critical prerequisite for the acquisition of 21st century skills.

Strengthen the state's existing workforce training and career development infrastructure at the regional level. The state's system of training and career services offered at the regional level and supported by the Workforce Investment Act are critical to the

Best Practice Lesson:

Wisconsin Regional Training Partnership is a nonprofit organization that serves the needs of Milwaukee-area employers, unions and community residents focused on cultivating a workforce necessary to meet the future needs of Greater Milwaukee's construction, health care, manufacturing and service industries.

In 2005, WRTP partnered with the BIG STEP apprenticeship test preparation program to create a Center of Excellence to address a boom in construction and a skills shortage for advanced manufacturing. The Center of Excellence offers streamlined services to industry and job seekers, performing such critical functions as centralizing job orders from employers and developing training certificate programs related to career opportunities in skilled trades and industries. The pinnacle of the Center's offerings is the BIG STEP apprenticeship test preparation program, which improves the access of women and minorities to the building and construction trades, focusing on developing the academic skills needed to pass the entrance exams for jobs in the field. Most participants are already employed in entry-level jobs in construction or manufacturing, but need remediation to qualify for advanced training programs, particularly apprenticeship training programs. In its first year of operation, the Center of Excellence placed 348 community residents in jobs at an average starting wage of \$14.60 per hour plus benefits.

state's goal of enriching talent. These regionally-based training and career services need to fully incorporate the best practices of various pilot employment and training efforts in the state, such as the Jobs Funnel and Career Ladder pilot programs, as well as advance broader and stronger interagency agreements across education institutions and technology development organizations as exemplified in the Workforce Innovation in Regional Economic Development (WIRED) language coming out of the United States Department of Labor.

