innovate RI 2008

Innovation and Economic Prosperity in Rhode Island



2008 RECOMMENDATIONS

Building an Innovation Economy in Rhode Island: 2008 Recommendations of the Rhode Island Science and Technology Advisory Council

The Rhode Island Science and Technology Advisory Council (STAC) was launched in 2005 and sustained by legislative statute in 2006 to make innovation central to the state's leadership agenda. STAC is charged with creating policies and programs that 1) increase Rhode Island's research and development capacity; 2) encourage entrepreneurship and new company creation; and 3) enable all organizations to innovate.

The following report includes an update on current activities and STAC's recommendations for 2008.



Left to right: Jeff Seemann, U.S. Senator Jack Reed, Governor Donald Carcieri, Senator William Walaska, and Representative Gordon Fox join a STAC meeting to support the state's innovation agenda.

Building a 21st Century Innovation Economy in Rhode Island

Today's changing economy is based more on ideas than on bricks and mortar. Locally, nationally and globally, we have seen a shift from a reliance on machinery and equipment to "knowledge workers," who generate ideas and information.

Like the nation, Rhode Island must now compete in a new economy where innovation and knowledge are the primary drivers of economic growth. Though daunting, the transition from old industrial economy to new global innovation economy offers us an opportunity to achieve great economic prosperity now and in the years to come.

Rhode Island has seen \$7 billion in new investment since 2005. Our economy has produced new jobs – more than 20,000 from 2002 to 2006, and 5,700 just in 2006 alone, which was the fastest job growth rate in New England. In 2007 we added 3,300 additional jobs.

Despite progress in creating jobs, Rhode Island is not as prosperous as we can and need to be. Consider this: across the nation, the average private-sector wage is just over \$42,000. In Rhode Island, the average wage is a little more than \$40,000. Only 40 percent of the jobs in our state pay more than the national average. Contrast that to our neighbors: in Connecticut, 56 percent of workers make more than the national average, and in Massachusetts, 59 percent do.

Rhode Islanders are employed, but we are making less money than our neighbors to the north and west. Many working Rhode Islanders are struggling to make ends meet. This fact tells us that we don't just need more jobs, we need better, higher wage jobs. These higher wage jobs will come from knowledge economy sectors that pay higher wages. In Rhode Island, these sectors include health and life sciences, information technology and digital media, defense and marine trades, financial services, and precision manufacturing. Growth in these sectors depends upon Rhode Island's ability to support a strong research and development enterprise, attract and retain entrepreneurs, launch new ventures and create an infrastructure and environment that enables innovation.

This is why the Rhode Island Science and Technology Advisory Council is committed to making innovation a leadership priority.

Creating High Wage Jobs Through a Statewide Commitment to Innovation

Rhode Island will never be the lowest cost place to do business. Rather than compete on cost, we must compete on our strengths. We have highly educated workers, good technological and transportation infrastructure, coastal access and some of the world's best academic and research and development institutions in our midst. Rhode Island is located within a knowledge-rich corridor that stretches from New Hampshire to New York. The 86 colleges and universities in this corridor form a strong base to support research and the creation of new knowledge. Rhode Island must compete by playing to our unique strengths and taking advantage of our place in this Northeast knowledge corridor.

It is important to note that Rhode Island has significant momentum in key innovation economy sectors such as health and life sciences and information technology and digital media. And Rhode Islanders are renowned entrepreneurs – we are two times more likely to start a business than the New England regional average.

Since its inception, STAC has focused on proposing and implementing programs and policies that support growth in targeted, higher wage "innovation economy" industries in Rhode Island. These are sectors—health and life sciences, information technology and digital media, and financial services, for example—where Rhode Island has both short- and long-term opportunities for growth. Rhode Island has a strong foundation in these sectors to build upon and access to many of the resources that businesses in these sectors need to thrive.

In 2008, STAC will continue its efforts to increase Rhode Island's research and development capacity, encourage entrepreneurship in innovation industries and promote programs that enable all organizations to innovate.

Just What is an Innovation?

INNOVATION IS OFTEN CONFUSED WITH INVENTION, BUT THE TWO ARE NOT THE SAME. By definition, an innovation is a new product, process or idea that is also a better way. It has to be an improvement to be considered an innovation. In business this is called delivering value. An invention, on the other hand, just has to be new. If it is an improvement, especially an improvement for which someone is willing to pay, that's an innovation!

STAC Success in 2007

2007 was a banner year for STAC. In just 12 months STAC oversaw the formal launch of the University of Rhode Island Commission for Research and Innovation, the first implementation of the Innovation Tax Credit, expansion of STAC's Rhode Island Research Alliance initiative, and a second round of competitive grants awarded via the Alliance's Collaborative Research Award program. Below is an update on each of these programs.

University of Rhode Island Commission for Research and Innovation

In 2006, STAC called for the creation of a blue ribbon commission to propose specific actions to strengthen the University of Rhode Island's position as a nationally competitive public research university and as a key institution in Rhode Island's efforts to build an innovation economy.

In response to this recommendation, the Rhode Island General Assembly passed and Governor Donald Carcieri signed into law legislation creating the URI Commission for Research and Innovation.

The creation of the commission recognized that fulfilling URI's mission as a research-performing institution is vitally important to creating the new knowledge, technologies, processes and products that drive innovation. Justice Robert G. Flanders, Jr., was named Chair of the URI Commission in April 2007. In September 2007, Flanders and STAC leadership announced the full roster of commission appointees, which includes Dr. James Coleman, Vice Provost for Research at Rice University; President and Chief Executive Officer of Women and Infants Hospital Constance Howes; former Director of Operations for the city of Providence Carol Grant; URI Vice President for Research and Economic Development Peter Alfonso; Margaret S. Leinen, Chief Science Officer for Climos; Saul Kaplan, Executive Director of the Rhode Island Economic Development Corporation and Executive Counselor to the Governor on Economic Growth and Community Development; and Dr. David Hibbitt, former Chairman of ABAQUS, Inc.

Also among those appointed to the commission is Lord Alec Broers, a well known and respected scientist and research administrator in the United Kingdom. In addition to spending nearly 20 years with IBM in the United States, Lord Broers is the former head of engineering at Cambridge University and Vice Chancellor of that university. Broers brings an important international perspective to the effort.

With Flanders at the helm, the nine-member team will make recommendations for how URI can 1) grow the size, significance and competitiveness of its research and development programs; 2) produce a larger, better trained, more science and technology oriented workforce; and 3) increase the levels of both industry involvement in its research programs and technology transfer/ commercialization activities.

The team has already embarked on a series of interviews and focus groups with national experts on university research, scientists and staff at URI, and senior leadership across the state. The team also has investigated best practices from peer institutions and evaluated case studies of other universities that have faced and overcome challenges similar to those faced by URI.

The commission will report their findings and recommendations to the governor and the Rhode Island General Assembly by September 2008.

Innovation Tax Credit

In 2006, STAC called for an incentive to attract and retain serial entrepreneurs and encourage investment in Rhode Island companies engaged in innovation-focused activities. Under the leadership of House Majority Leader Gordon Fox and Senator William Walaska, the General Assembly passed legislation creating the Innovation Tax Credit. The credit offers investors up to a 50 percent credit on eligible investments, with a maximum credit of \$100,000.

Entrepreneur Uses New Credit to Expand Effort in Rhode Island

STAC PUTS A HIGH PRIORITY ON IDENTIFYING AND RECOMMENDING WAYS FOR RHODE ISLAND TO MODERNIZE AND IMPROVE ITS APPROACH TO SUPPORTING ENTREPRENEURSHIP AND NEW COMPANY CREATION. RHODE ISLAND MUST CONTINUE WITH EFFORTS TO CREATE A TOOLKIT OF UPDATED PROGRAMS THAT MORE ACCURATELY REFLECTS BUSINESSES' NEEDS FOR SITES, A WELL TRAINED WORKFORCE AND GROWTH CAPITAL.

The new Innovation Tax Credit is a good example of how updated tools can be used to promote growth. The Innovation Tax Credit, proposed by STAC in 2006 and launched in 2007, is designed to attract and retain serial entrepreneurs and stimulate economic growth in highwage, high-growth industries. In addition to being tested against a set of base eligibility requirements, applications for the credit are evaluated on how well the project supports a culture of entrepreneurship and how important the business's plan is to advancing an innovation economy.

Among the first round of companies pre-approved for the credit is Bionica Corporation. Established in 2007, Bionica Corporation was founded by Design Lab principals Ralph Beckman and Kipp Bradford after Beckman became frustrated with his father's struggles wearing a hearing aid. Working with scientists, designers and engineers at Design Lab, Bay Computer Associates and Brown University, Bionica has developed an improved hearing aid called the Clio. The Clio, based on leading edge microprocessors and sound transmission technology, will be the first hearing aid to work well in multiple hearing environments, including the car, theater and restaurants. The hearing aid's software separates speech from noise for optimal hearing in all environments.

"Early stage investment in burgeoning technology companies plays an extremely important role in new company creation," said Bradford. "In our particular instance, we are a company that grew out of the local scientific, industrial design and engineering communities, which saw great potential in developing new innovative technologies for the hearing impaired. It is our intention to leverage the innovation tax credit to attract more local investment in our company and see this as an integral part of our business growth strategy." To be eligible for the credit, an investor must invest in a Rhode Island business with annual gross revenues of less than \$1 million in the prior two years. Companies must fall within one of the following innovation industries: biotechnology and life sciences; communication and information technology; financial services; marine and defense manufacturing; professional, technical and educational services; and industrial and consumer product manufacturing and design.

Applications also are evaluated on the entrepreneurial potential of the applicants, how well the project supports a culture of entrepreneurship and how important is the plan is to advancing an innovation economy.

The credit was put into action in November 2007 when the first batch of applications were reviewed and six companies received pre-approval to seek new investments. All six companies with pre-approval now are actively using the incentive to attract new investment into the companies.

The new Innovation Tax Credit is a good illustration of an updated tool that can be used to attract and retain serial entrepreneurs and stimulate economic growth in high-wage, high-growth industries. Kipp Bradford, Chief Technology Officer of Bionica Corporation, had this to say when his company was pre-approved for the credit: "Early stage investment in burgeoning technology companies plays an extremely important role in new company creation. We are a company that grew out of the local scientific, industrial design and engineering communities...It is our intention to leverage the innovation tax credit to attract more local investment



Governor Donald Carcieri addresses STAC in 2007.

Coming this Spring: The Rhode Island Collaborative Research Web Portal

IN 2007 STAC, THROUGH ITS RESEARCH ALLIANCE PROGRAM, BEGAN WORK ON A COLLABORATIVE RESEARCH WEB PORTAL. The portal, due to launch in early spring 2008, will contain the state's first cataloguing of shared equipment and core facilities, a statewide calendar of research-related events, and networking tools to facilitate collaborative grant applications. The portal also will create a new virtual home for the Rhode Island EPSCoR program, creating new capability for sharing information, adding online evaluation and reporting tools, and creating a unified platform for sharing collaborative research success stories and news about emerging opportunities.

in our company and see this as an integral part of our business growth strategy."

Supporting entrepreneurs and attracting investment to Rhode Island is central to efforts to build a 21st century innovation economy that produces higher wage jobs for all Rhode Islanders. Unlike many of the state's more outdated credits, the Innovation Tax credit directs resources toward innovative, small companies that are well positioned to grow higher wage jobs.

Collaborative Research Award Program

Investing in collaborative research is strategic for Rhode Island in two important ways. First, investment in collaborative research takes advantage of Rhode Island's unique ecosystem, one in which the state's compact geography and "tight knit" social networks enable collaborators to more easily share resources, equipment and information. Second, collaborative research is widely regarded as key to the multidisciplinary exploration emphasized by federal funding agencies and many commercial and foundation funding programs. Collaborative, multidisciplinary research is also considered to be a successful route to novel intellectual capital and new company creation.

Through the Rhode Island Research Alliance (discussed at length in the 2008 recommendations section of this report), STAC created a competitive, merit-based award program to support projects that are 1) of significant scientific merit; 2) collaborative across institutional boundaries; 3) catalytic in nature; and 4) well positioned to receive additional public and/or private funding. Projects with significant technology development and/or commercialization potential are also encouraged.

In 2007, STAC used a competitive granting process similar to that used by the National Science Foundation to award nearly \$1.5 million to eight teams of 32 scientists from 15 research institutions pursuing collaborative projects in medicine, engineering, chemistry, biology, oceanography and environmental science. The funding provided support for projects such as the development of high-tech toys to aid children with diseases such as cerebral palsy, using virtual reality to improve the design of prosthetic limbs and the development of new marine-based drugs to fight a common and deadly hospital infection.

Evidence of the program's catalytic nature came in August 2007 when one funding recipient received a grant from the National Institutes of Health totaling \$1.4 million to continue their pioneering testicular cancer research. This one award was almost equivalent to the amount of dollars the state invested in the program.

In 2008, STAC continued the program. Forty-nine proposals were submitted during this current cycle. (Read more about the awardees on page 8)

Creating Conversations, Convening Experts

Another important activity for STAC in 2007 was creating opportunities for Rhode Island researchers to connect, share ideas and learn from national experts. In support of this agenda, STAC conducted an inaugural collaborative research symposia, invited Information Technology and Innovation Foundation (ITIF) president Robert Atkinson to Rhode Island to discuss results from the 2007 State New Economy Index and brought C. Michael Cassidy, CEO of the Georgia Research Alliance, to Rhode Island to present "best practices" for developing a successful statewide research alliance.

Collaboration was the chief topic at "Expanding Rhode Island's Research and Development Capacity Through Collaboration," a one-day forum, hosted in April 2007 by STAC and Rhode Island's Experimental Program to Stimulate Competitive Research (EPSCoR). Of special interest was the event's "Why Collaboration Matters" session with Deputy Director of the National Science Foundation Dr. Kathie Olsen and President of the State

Student Inventors Strut Stuff at FIRST Vex Challenge

The sights and sounds were reminiscent of a sporting event: referees donning black and white apparel, bleachers filled with an electrified crowd and an announcer's booming voice. But this was no basketball game. This was the FIRST Vex Challenge, where high school students built working robots and put their creations to the test in a head-to-head competition. STAC was a lead sponsor of the program.

With broad support from the community, 25 teams and 150 students from across the state participated in the event, held at the New England Institute of Technology in March 2007. Preparations are already underway for the 2008 competition and STAC will continue its support of the program this year.

Working as a team, students used the kit's raw materials to construct a working robot capable of performing a set of tasks. Along the way, teams chronicled their experience in an engineering notebook. Students then brought their creations to a statewide tournament where robots squared off in a ring to earn points. Winning teams can participate in FIRST's national competition in Atlanta.

"Everyone's been to a high school sporting event and seen how excited a community gets about a winning basket or a home run," said Saul Kaplan, STAC member and Executive Director of the Rhode Island Economic Development Corporation. "Imagine the same scene, only this time the crowd is cheering on a student who has used her skills to excel in a robotics competition. To see this kind of excitement brought to learning was extraordinary."

FIRST is using their experience in Rhode Island to test strategies for the Vex program's national expansion, offering up a strong proof point for Rhode Island's unique ability to serve as a test bed for developing new ideas.



Photo by Brian Jepson

Science and Technology Institute Dan Berglund. In addition to discussing the importance of collaborative research to federal research funding competitiveness, Olsen encouraged Rhode Island's government, businesses and colleges to work together to develop strategies for improving Rhode Island's science and technology education programs.

ITIF president Atkinson was a guest at STAC's April meeting, where he presented results from the 2007 State New Economy Index, published by ITIF and the Ewing Marion Kauffman Foundation. The Index contained a state-by-state analysis of how state economies are transitioning away from economic development strategies that focus on big company relocations toward strategies that focus on the creation and retention of high-wage jobs in growth industries. The report cited Rhode Island as one of the "Top Five Movers" in economic transformation. Atkinson discussed Rhode Island's current position and offered perspective on what Rhode Island can do to build on momentum and accelerate its effort to create a knowledge-based, global innovation economy.

Georgia Research Alliance CEO Cassidy joined STAC at its October 2007 meeting. The GRA began in 1990 when a group of Georgia's leaders envisioned business, research universities and state government coming together to build a technology-driven economy fueled by innovative university research. Under Cassidy's leadership, the Georgia Research Alliance has invested some \$400 million, which has helped to attract more than 50 Eminent Scholars, leverage an additional \$2 billion in federal and private funding, create more than 5,000 new technology jobs, generate some 120 new technology companies, and allow established Georgia companies to expand into new markets.

During his visit, STAC hosted a series of meetings and an afternoon round table discussion with Cassidy and research and development leaders from across the state. STAC used the time with Cassidy to glean insights into best practices Rhode Island might leverage in its effort to grow a more robust statewide research platform.

2008 Recommendations

Growing an innovation economy and creating a more prosperous Rhode Island depends on our ability to



STAC co-chair Jeff Seemann

continue to make investments year after year. These investments must have both short- and long-term potential and enable us to harvest immediate benefits while sowing the seeds for future growth.

The purpose of STAC's 2008 recommendations is to build upon progress made in 2006 and 2007 and accelerate Rhode Island's transition toward a higher wage 21st century innovation economy.

Recommendation 1: Expand the Rhode Island Research Alliance

In 2006, STAC created the Rhode Island Research Alliance to promote collaboration across the state's research institutions, attract additional federal research and development investment into Rhode Island, increase the state's research and development capacity and fundamentally add value to the individual organizations participating in the Alliance.

In 2008, the Alliance will expand its activities. Its primary initial goal will be to assess the various research areas that are ripe for collaboration among the major research institutes of the state and begin to assist in the preparation of collaborative proposals to major funding agencies such as the National Science Foundation and National Institutes of Health, support the development and marketing of joint /shared laboratory facilities, produce events and activities that promote collaboration, and make recommendations to state leadership on policies and programs that promote collaborative research and benefit the member organizations of the research alliance. In 2008, the Alliance will seek to expand and formalize its operations. The first step in this process will be the development of an engagement plan that deepens support for the Alliance among participating institutions and defines new opportunities for collaboration. In addition, STAC will continue with current activities and programs and petition the state to renew its support for Alliance activities, which includes a \$1.5 million budget allocation in FY09 to support the Collaborative Research Award program.

Why Does Rhode Island Need a Stronger Research Alliance?

Rhode Island's research and development organizations, academic and commercial, are a vital engine of economic growth for the state. More than 20,000 people are employed in research and development related positions in Rhode Island, 118 companies are directly engaged in research and development pursuits, and there are dozens of academic and healthcare institutions engaged in research activity. In addition to creating high-wage jobs and spurring new company creation, these organizations educate the state's next generation of scientists and engineers, support entrepreneurs and create new solutions for the problems facing our communities.

Increasing Rhode Island's research and development capacity is critical to future economic growth.

One very important indicator of research and development activity and capacity is federal funding levels. In 2006, Rhode Island institutions received \$130.8 million in funds from the NIH and \$37.4 million from NSF. Between 2002 and 2006 NIH funding in Rhode Island grew 13.6 percent, while other New England states saw larger increases (New Hampshire: 15.3 percent; Connecticut: 15.5 percent; Massachusetts: 16.6 percent). Many other states with similar research and development positions saw even more significant increases (South Carolina: 16.8 percent; Kentucky: 25.9 percent; Louisiana: 38.9 percent).

The Research Alliance will strengthen connections across the state's research institutions and increase Rhode Island's competitiveness as it seeks additional federal funding. The Alliance can play an important role in building collaborative programs and assisting in

Rhode Island Steps Up R&D Investment with Annual Competitive Research Awards

STAC'S COLLABORATIVE RESEARCH AWARD PROGRAM IS ONE OF RHODE ISLAND'S MOST IMPORTANT TOOLS FOR INCREASING THE STATE'S RESEARCH AND DEVELOPMENT CAPACITY. THE PROGRAM IS DESIGNED TO ADVANCE PROJECTS THAT ARE COLLABORATIVE ACROSS INSTITUTIONS, WELL POSITIONED TO RECEIVE FOLLOW-ON FEDERAL OR PRIVATE VENTURE FUNDING AND HAVE SIGNIFICANT COMMERCIALIZATION POTENTIAL.

With the program's launch in 2007, STAC used a competitive granting process to provide support for projects such as the development of high-tech toys to aid children with diseases like cerebral palsy, the improved design of prosthetic limbs and the development of new marine-based drugs to fight a deadly hospital infection.

Evidence of the program's catalytic nature came in August 2007 when one funding recipient—a collaboration between Brown University and Rhode Island College—received a \$1.4 million NIH grant to continue their pioneering testicular cancer research. This one award was almost equivalent to the total amount of dollars the state invested in the program.

With support from Governor Carcieri and the Rhode Island General Assembly, funding for the program was continued in 2008. This year, the awards will support nine projects, representing 24 scientists from 14 research organizations across Rhode Island. Awardees include:

- A project to develop new ways to treat at-risk pregnancies,
- An effort to develop new medicines for breast cancer,
- Development of technology to assist police in obtaining higher quality evidence from low resolution video,
- Acquisition of equipment that enables Rhode Island scientists to better study proteins and their role in disease,
- An effort to better understand and manage green algal "blooms" in Narragansett Bay,
- Development of new platform for improving hearing aids,
- A collaboration to create an inexpensive, instant test for anemia,
- An effort to commercialize novel genome sequencing technology,
- And, a partnership to develop new drugs for asthma and congestive heart failure.

STAC has asked the Governor and General Assembly to renew funding for the program in 2009 and continue support for this strategic investment in Rhode Island's economic prosperity. preparation of grant applications that combine activities at different institutes. Furthermore, the Research Alliance can work with these institutes to monitor emerging opportunities, serve as an information clearing house, make recommendations to state leadership on policies and programs that support research and promote collaboration and produce events and programs that bring Rhode Island researchers together.

With support from Governor Donald Carcieri and the Rhode Island General Assembly, STAC launched the Rhode Island Research Alliance in 2006 with a competitive grant program to support collaborative research and projects well-positioned to attract significant federal investment.

In 2007, the program awarded nearly \$1.5 million to 32 scientists from 15 research institutions. The funding supported projects to design high-tech toys for children with cerebral palsy, improve the design of prosthetic limbs and develop new marine-based drugs to fight a deadly hospital infection.

Funding for the program was continued in 2008. This year, the awards will provide support to nine projects, representing 24 scientists from 14 research organizations across Rhode Island. Awardees include a project to develop new ways to treat complicated, at-risk pregnancies; efforts to develop new Supporting entrepreneurs is one of the state's most viable methods for significantly increasing new company creation and accelerating growth in Rhode Island's life sciences industry.

research hospitals, corporations and government agencies. The funding has also strengthened Rhode Island's ability to attract additional federal research investment.

Evidence of the success of the program came in August when one winning team—a collaboration between Brown University and Rhode Island College—received a grant from the National Institutes of Health totaling \$1.4 million to continue their work. This amount is essentially equal to the cost of the entire Research Alliance grant program. Continuation of this program is essential to keeping the momentum that Rhode Island has created in deepening its research and development capacity.

> Another goal of the Alliance in 2008 is to bring greater connectivity to the state's existing collaborative research institutions and programs. This includes Rhode Island's **Experimental Program to Stimulate** Competitive Research (EPSCoR), a program of the National Science Foundation that brought \$6.75 million into Rhode Island in 2006, and the National Institutes of Health's Institutional Development Award (IDeA) program. The IDeA program has brought more than \$77 million into Rhode Island via the state's Centers of Biomedical Research Excellence (COBRE) and Idea Network of Biomedical Excellence (INBRE) programs. The

medicines for breast cancer, asthma and heart failure; deployment of technologies that assist police in obtaining higher quality evidence from low resolution video; and a project to develop a fast and inexpensive test for anemia in at risk populations, among others.

Winning teams include scientists from Bionica, Brown University, Celgen, Inc., NABsys, Organomed, ProThera Biologics, Rhode Island College, Women and Infants Hospital, Rhode Island Hospital, Rhode Island State Police, Roger Williams University, Salve Regina University, and the University of Rhode Island.

The program provides an invaluable tool for promoting collaboration among the state's research universities,

EPSCoR, COBRE and INBRE programs show how Rhode Island can build on existing assets and better leverage current investment in research and development activities.

All of these programs are contingent upon collaboration and are designed to support the state's development of core facilities and competencies. Both the National Science Foundation and the National Institutes of Health have publicly reinforced the concept that significant amounts of research funding will be focused on projects that promote cross-institutional and cross-disciplinary activity. If any state in the nation should be able to take advantage of this major growth area for research and development and associated new company creation and economic development, it is Rhode Island, which can leverage its small size and already well-developed relationships.

The Rhode Island Research Alliance is an ideal platform for expanding these existing programs and seeking additional federal and industry investment. STAC initiatives such as this have been remarkably successful in bringing together governmental, academic and corporate organizations in new, positive and creative ways. These initiatives have laid the foundation for game-changing opportunities for our state. In bringing more common focus to the state's research endeavor, Rhode Island can parlay these foundational investments into a significant economic growth opportunity.

Recommendation 2: Expand the Slater Technology Fund's Incubator Capacity and Relocate Slater's Center for Entrepreneurship in Life Sciences to Providence's Jewelry District

With the relocation of I-195, the expansion of Brown Medical School, a strong presence from Lifespan and a growing cluster of biotech companies, Providence's Jewelry District is poised to become the next frontier of growth for Rhode Island's health and life sciences industry. The industry is one of Rhode Island's strongest sectors, employing more than 35,000 people and offering one of the state's highest average salaries. As a driver of high-wage job growth, the health and life sciences sector represents one of Rhode Island's most important economic development opportunities.

Supporting entrepreneurs is one of the state's most viable methods for significantly increasing new company creation and accelerating growth in Rhode Island's life sciences industry. Rhode Island can and must do more to support the creation of new ventures.

Entrepreneurs in the life sciences face special challenges in getting new companies off the ground. For example, ventures transitioning from academic environments the primary source of most new U.S. life sciences and biotechnology companies—need to move from the open environment of a university to a venue for commercial development. While moving off-campus is a fundamental need, ventures often need to show significant "proof of concept" to attract the investment required to set up independent operations. In most cases, however, building this proof requires up-front access to sophisticated and often expensive equipment and special-purpose labs. Incubator spaces help promising companies confront these challenges, successfully manage early activities, and attract additional investment. In these environments, early stage life sciences companies want access to more than affordable spaces. Incubator programs also provide access to managers who can serve as mentors, finance experts who can provide guidance around investment needs, and a place to interact and learn from other entrepreneurs.

Rhode Island's Slater Technology Fund currently operates the state's only life science incubator program. For the past four years, Slater has leased 7,500 square feet of fully-outfitted wet lab space in the Richmond Square office complex on Providence's East Side for use by biotechnology-based start-up companies associated with the fund. Tenants pay rent to use the space but bypass expensive build-out costs by moving operations into a space that is already outfitted as a working laboratory.

Several of Slater's incubator companies have been successful. One tenant—NABsys—recently was awarded a two-year \$500,000 award from the National Institutes of Health to continue its pioneering genome sequencing work.

Given its size and location, Slater's current incubator space is limited in its effectiveness to broadly support a culture of entrepreneurship and serve as an engine of new company creation. With only 7,500 square feet and no capacity for expansion, the current facility cannot meet the growing need for incubator space in this important sector.

Proximity to the professors, post-docs and graduate students associated with the seminal innovations that often form the basis of new life science ventures is one of the driving factors behind the success of leading biotech centers such as Boston/Cambridge, the San Francisco Bay Area and San Diego. Such proximity serves, in effect, as a strategy for developing high-value, high-wage jobs from academic activity that is lacking in the incubator's current location in Richmond Square.

STAC recommends that, in 2008, Slater Technology Fund move forward with plans to expand its life sciences incubator program, increase its capacity to nurture nascent life sciences ventures and relocate current incubator operations to Providence's Jewelry District. Slater will identify potential public and private partners in the build-out of the new facility through an RFP process in February 2008. Slater is not seeking additional state funds to support the venture.

The Slater Center for Entrepreneurship in Life Sciences will enable Slater to assist a greater number of entrepreneurs and companies and physically locate activities closer to Rhode Island's major life sciences resources. The Center will deepen the state's capacity for launching compelling new ventures and improve our ability to develop more sustainable seed stage ventures with substantial commitment to basing and building their business in Rhode Island long term.

Slater will seek public and private partners to identify and fit-out a new location for the incubator in the Jewelry District. Using an open RFP process, Slater will identify a partner or partners who can procure a space with approximately 10,000 square feet. Ideally, the space would have expansion options enabling the Center to grow to 20,000 square feet within two to three years. Slater is seeking a physical home for the Center that is capable of accommodating up to 10 or more seed stage, life science ventures.

The current Slater Technology Fund incubator program will transfer into and anchor the initial space, providing income to support leasing and associated operating costs. Slater also intends to use the new facility to serve as a locus for entrepreneurship programming in areas such as:

- Technology development planning
- Intellectual property strategies/issues
- Technology transfer issues
- Management recruiting
- Grant-writing strategies
- Equity fund-raising

Respondents to the RFP will be asked to submit proposals on how they can assist Slater and its partners in the Center's development.

STAC supports Slater in this activity and will partner with Slater as appropriate in the development of the Center for Entrepreneurship in Life Sciences.

Recommendation 3: Continued Support for STAC

Creating an innovation economy in Rhode Island will require a deliberate, collaborative and sustained effort from Rhode Island's government, business, academic and community leadership. It will also take time. Together with Rhode Island's leaders, STAC will continue to build upon its recommendations each year. Continued support of STAC will accelerate the state's evolution towards an innovation economy that is nationally and globally competitive and better prepared to meet the needs of its citizens. We are making progress but must not lose momentum.

STAC recommends that the state renew its \$100,000 investment in STAC to support council operations in FY09. This investment will enable STAC to implement current recommendations and work towards a follow-up set of recommendations that build upon our success.

Conclusion

We believe that the tools to grow and support a vibrant innovation economy are well within Rhode Island's reach. Furthermore, we believe that Rhode Island, drawing strength from its closely connected and talentrich communities, is at precisely the right place in its history to confidently overcome the challenges we face in making this new vision for Rhode Island a reality.

STAC's recommendations and programs do not address every issue and factor affecting Rhode Island's ability to prosper in the 21st century. Rather, these recommendations are building blocks for a long-term effort to create an innovation economy that benefits the people of Rhode Island. STAC urges Rhode Island's leadership to seize this opportunity to take steps today to create a future in which the state's citizens will reap the benefits.

Who is STAC?

Co-Chair, Clyde Briant, Vice President for Research, Brown University Co-Chair, Jeff Seemann, Dean of the College of the Environment and Life Sciences, University of Rhode Island Joseph Amaral, Former President of Rhode Island Hospital Paul Choquette Jr., Chairman and CEO, Gilbane, Inc. Kimball Hall, Vice President and General Manager, Rhode Island Operations, Amgen, Inc. David Hibbitt, former Chairman, ABAQUS, Inc., Providence, RI Saul Kaplan, Executive Director, Rhode Island Economic Development Corporation Arthur Klein, Senior Vice President and Chief Physician Officer of the Lifespan healthcare network and Associate Dean for strategic and special projects at the Warren Alpert Medical School of Brown University Margaret Leinen, Chief Science Officer, Climos Richard Nadolink, Chief Technical Officer, Energetics Technology Center Thomas Rockett, Governor for Higher Education and Vice Provost, Emeritus, University of Rhode Island Thomas Ryan, Chairman, President and CEO, CVS Corporation

Donald Stanford, President, Stanford Scientific

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RHODE ISLAND

SCIENCE & TECHNOLOGY

ADVISORY COUNCIL

About STAC

The Science and Technology Advisory Council (STAC), is a coalition of business, academic, and government leaders that seeks to assist Rhode Island's leadership in increasing the state's research and development capacity, supporting entrepreneurship and new company creation and enabling all organizations to innovate.

In this capacity, STAC aims to assist in creating an innovation economy in Rhode Island that will grow higher wage jobs and address critical needs in areas such as health care, education and public safety.