



Woods Hole Oceanographic Institution President Robert Gagosian and University of Massachusetts Dartmouth Chancellor Jean MacCormack meet with Governing Board members to discuss the potential of marine science.



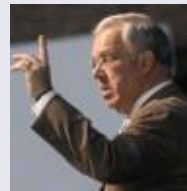
Mitch Tyson, CEO
Advanced Electron
Beams

“The Innovation Institute has been a catalyst in getting a dialogue established between the critical sectors in the state. The right people are at the table—although there is always room for more.”

Have you heard?

The word is ‘ubiquitous’ wireless

BOSTON - Joining the nationwide movement of municipalities to create ubiquitous wireless Internet access, Boston is forming a new initiative to accomplish this task with the support of Mayor Tom Menino, the Museum of Science and the Boston Foundation. The Boston HotSpot initiative was unveiled at a February 15 gathering. [More >>](#)



The New Economic Wave

Massachusetts Marine Science & Technology Industry Cluster Gathers Force

FALMOUTH - The exchange of ideas was fast and furious at the February 6, 2006, meeting of the Governing Board of the John Adams Innovation Institute. Chancellor Jean MacCormack of the University of Massachusetts Dartmouth and President Robert Gagosian of the Woods Hole Oceanographic Institution shared their visions for the emerging Marine Science & Technology industry cluster. [More >>](#)

Wireless Learning

Laying the Groundwork for a Statewide Initiative



NORTH ADAMS - The successful launch of the first phase of the Berkshire Wireless Learning Initiative at four middle schools in Pittsfield and North Adams has focused renewed attention on the potential to create a statewide initiative in wireless learning. [More >>](#)

Innovation Institute Investments

WORCESTER – A new **Center for Biocomputing** to help companies and research institutions accelerate the work on drug discovery and development work is taking shape, thanks in part to a \$150,000 investment by the John Adams Innovation Institute. [More >>](#)

CAMBRIDGE – The **Massachusetts Space Grant Consortium at MIT** received an initial \$100,000 matching investment to support the aerospace industry in Massachusetts, leveraging an award by NASA. [More >>](#)

LOWELL – The **University of Massachusetts Lowell** will conduct two pilot projects at the **Massachusetts BioManufacturing Center**, funded by a \$150,000 matching investment by the John Adams Innovation Institute. [More >>](#)

An Rx for Robust Growth and Global Competition in Life Sciences

WESTBOROUGH - The new Massachusetts initiative to develop the framework for strategic cross-sector



collaboration within the Commonwealth’s Life Sciences mega-cluster is moving ahead rapidly, picking up key support from industry and academic leaders and policy makers.

[More >>](#)

WILMINGTON - Technology entrepreneur Mitch Tyson, the CEO of **Advanced Electron Beams**, says he loves the “intellectual challenge and creativity” of working with the John Adams Innovation Institute Governing Board, exploring the best ways to leverage government investments in the state’s Innovation Economy. [More >>](#)

FALL RIVER – An investment of \$79,645 to the **Advanced Technology Manufacturing Center** is targeted to assist in the development of a prototype. [More >>](#)

If you would like to be removed from this distribution, or have someone that you would like to have added to the list, please let us know: jai@masstech.org

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Newsmaker: Mitch Tyson

(Continued from front page)

CEO Mitch Tyson talks about the challenges of serving on the John Adams Innovation Institute Governing Board and its Executive Committee

Tyson began his career as a legislative assistant to Sen. Paul Tsongas in Washington, D.C., after receiving his undergraduate and graduate degrees at MIT. He then returned to the private sector in Massachusetts, successfully growing PRI, a small company in the high-tech field from 45 employees to more than 1,800, before it was acquired.

Tyson believes that the John Adams Innovation Institute is the focal point on issues involving technology-based economic development in Massachusetts.

CONVERGENCE: How do you see the role of John Adams Innovation Institute in growing the Commonwealth's Innovation Economy?

TYSON: The John Adams Innovation Institute is the locus of dialogue on how to encourage, improve and support the technology-based economy.

I believe the state government can play an important role in stimulating the innovation economy and figuring out the ways in which it can work with the private and non-profit sectors. But the intervention has to be just right: to encourage, not stifle, to coordinate and not substitute. The issue is leverage.

I think Massachusetts has largely ignored the high-tech sector and taken it for granted. But as competitive advantage goes global Massachusetts needs to focus on its strengths and its role as a source of innovation. We need to understand how the sectors in our state create economic value through innovation and find ways to amplify that process in order to assure our state's economic well-being. That is what the Innovation Institute is doing. The Innovation Institute is breaking new ground. There hasn't been an initiative like this before in Massachusetts.

“The Innovation Institute is an experiment of government intervention in the marketplace. It’s breaking new ground by investing resources in the Massachusetts knowledge- and technology-based economy, using limited dollars that the Legislature has allocated to date.”

Mitch Tyson

CEO of [Advanced Electron Beams](#)

My role on the Governing Board and the Executive Committee is to contribute to the debate, raise questions, clarify objectives, and ensure that there are metrics in place to monitor and measure the Institute's activities. As we address problems, we need to learn something from it, and build a body of knowledge that the state can use in the future.

CONVERGENCE: What excites you about the work?

TYSON:

What the Institute is trying to do is very important. I believe in the cause, because it's so vital to the economy of Massachusetts. I live in Massachusetts, this is my home, I want to see the quality of life improve and make this a good place for my kids to live and work. The technology-based economy is vital to that.

The Innovation Institute is breaking new ground in crafting a program to leverage a relatively small amount of state dollars to stimulate the innovation economy in the state. We need to apply the money carefully and wisely but also take some risks and do some experimentation to see what activities best address the gaps in our state's innovation process.

I love working together [on the Governing Board] with some of the smartest people in our state representing the relevant institutions and constituencies. We're trying to figure out how to solve a very complex problem and how to leverage effectively the numerous resources that the state has, such as our great universities and powerful venture capital community.

And lastly, I have to say that Don Dubendorf's leadership and Mitch Adams' support have been exemplary and critical. I am also very impressed with the staff, their dedication and expertise. They've been so diligent in crafting and implementing this program.

CONVERGENCE: What are the challenges the John Adams Innovation Institute faces as a pioneer?

TYSON: The Innovation Institute is an experiment of government intervention in the marketplace. It's breaking new ground by investing resources in the Massachusetts knowledge- and technology-based economy, using the limited dollars that the Legislature has allocated to date.

I think it's a very worthwhile effort. But it is a work in progress. Not every grant will pay off. It will take another couple of years to evaluate its success in creating and retaining high-tech jobs in Massachusetts. It's still too early to tell. But I think the variety of mechanisms that we are exploring and the tremendous participation of our state's educational and research institutions is very encouraging. I think, at a minimum, we have gotten the research sector in the state to think about how they can create economic activity and

jobs beyond just conducting research.

The Institute has also created a forum for ideas. Many new concepts have been proposed to the Institute from grant applicants. The Governing Board and the Executive Committee have had some great discussions and many creative approaches have surfaced. Most importantly, the Institute has been a catalyst in getting a dialogue established between the critical sectors in the state. The right people are at the table—although there is always room for more!

CONVERGENCE: You recently were recruited to become a CEO of a new Massachusetts company, Advanced Electron Beams? What can you share about the company's activities?

TYSON: I became CEO of Advanced Electron Beams in early October 2005. The company is an early stage venture with a remarkable technology that very efficiently creates an electron beam plasma that can substitute for many thermal- and chemical- based industrial processes and, in the process, save an enormous amount of energy, reduce chemical pollution and improve productivity.

We've been funded by two local venture capital firms. We're hiring local engineers, manufacturing, and marketing/sales personnel, and we are looking to establish relationships with local universities to explore new applications for our technology. So we're taking advantage of the resources in our state and hopefully will create jobs, improve the environment, and help other Massachusetts companies to be more productive and competitive.

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Have you heard? The word is 'ubiquitous' wireless

Innovation Institute will undertake essential analysis of business models, engaging with industry to establish policies and programs that leverage the emerging new wireless technologies

(Continued from front page)

Its task force will be directed by Joyce Plotkin, President, Massachusetts & Technology Leadership Council, James Cash, retired Professor, Harvard Business School, and Rick Burnes, Co-founder and Director, Charles River Ventures.

At the direction of its Governing Board, the John Adams Innovation Institute will be supporting these efforts statewide by undertaking an analysis of the different business models being used in cities and communities across the nation and internationally. As an important part of the analysis, the Innovation Institute will engage with industry and talk about the ways to establish policies and programs that best leverage the emerging wireless technologies. The Governing Board anticipates using its May meeting as a forum in which to consider the role of government and potential business models for achieving the stated goals for broadband connectivity in Massachusetts. A final report—with policy recommendations and actions steps—will be issued by the Governing Board in the summer of 2006.

“The creation and deployment of ubiquitous, sustainable broadband access has become an imperative for regional economic growth in a global marketplace,” said Don Dubendorf, Chair of the Governing Board. “Today, with off-the-shelf technologies, communities around the world are overlaying ultra-fast broadband pipes, typically through a combination of fiber and wireless technologies, enabling speeds 100 times faster than what we currently experience, at nominal costs to the customer.”

Among the strategic goals under discussion for adoption by Massachusetts are that commercial class wireless access should be accessible along every mile of Interstate highway and primary state roads by January 2009. By January 2011, Massachusetts should be covered by a ubiquitous wireless broadband access at gigabyte speeds.

“Broadband is the new American economic revolution,” said Mitch Adams, MTC’s Executive Director, who will serve on the new task force. “Dozens of municipalities, large and small, are taking the lead, driven by the expectation that citizens ought to be able to connect with the Internet anytime and anywhere.”



An ad hoc advisory panel will serve to guide efforts by the Innovation Institute, drawn from a be a cross-section of public and private sector individuals who can help shape the Massachusetts discussion.

Massachusetts is not yet a leader in broadband connectivity, but these efforts will propel the Commonwealth in the right direction," said Dubendorf. "Broadband is the economic catalyst of our times," he continued. "It is to the 21st century what harbors were to the 17th, rivers to the 18th, railways to the 19th, and the interstate highway system to the 20th century."



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Laying the Groundwork for a Statewide Wireless Learning Initiative

Pilot programs seek to build a skilled workforce for tomorrow's challenges



(Continued from front page)

In the Berkshires, more than 700 seventh-grade students received Apple iBook G4 wireless laptops in early January 2006. The three-year pilot program is a partnership between partnership of local community business leaders, the schools, and the Commonwealth.

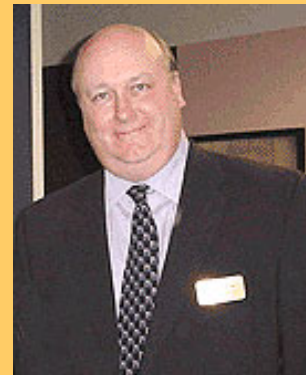
State support for the initiative is provided through the John Adams Innovation Institute. Project management is being coordinated by Berkshire Connect, Inc.

The state has designated \$2 million; an additional \$2 million is being raised by the private sector. Schools are providing about \$1.7 million, in both cash and dedicated staffing.

A key component is the comprehensive evaluation of the program, which is being undertaken by Boston College's Technology and Assessment Study Collaborative. The first study of its kind in the nation, this evaluation will provide hard evidence about the success and benefits of the wireless learning initiative.

Planning for a second one-to-one wireless laptop initiative pilot program is now underway in Dorchester at the [New Boston Pilot Middle School](#).

“Today’s seventh graders in Massachusetts are competing not only against other students in New England and throughout the United States, but against students in China, India and Europe. Through the Berkshire Wireless Learning Initiative, they are being given the tools they need to compete.”



Michael Supranowicz

Vice President, COO, Berkshire Chamber of Commerce

CO-Chair, Steering Committee, Berkshire Wireless Learning Initiative

Follow links to:

[Read official press release.](#)

[View articles](#) from the *Berkshire Eagle* on the BWLI launch.

[View photos](#) from the launch, courtesy of

On Jan. 31, 2006, a hearing was held before the Joint Committee on Education on House Bill 1219, "An Act Establishing the Massachusetts Wireless Learning Project in the Commonwealth Schools." John Adams Innovation Institute Director Patrick Larkin testified in support of the legislation, which would provide \$30 million to fund about 15 new wireless learning initiatives in Massachusetts.

"The investment is **not** about technology," said Rep. Daniel Bosley, Chair of the Economic Development and Emerging Technology Committee. "It is about changing the paradigm of learning in our schools, working as partners with students, teachers, parents, school administrators, and community business leaders. The challenge of a statewide initiative will be investing not just in computers, but in the critical support system—teacher training, evaluation, technical staff, and parent and community partnerships. "

Studio Two.

Testimony of Mitchell Adams
January 31, 2006

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Innovation Institute Investments

(Continued from front page)

WORCESTER – A new Center for Biocomputing to help companies and research institutions accelerate the work on drug discovery and development work is taking shape, thanks in part to a \$150,000 investment by the John Adams Innovation Institute. Massachusetts Biomedical Initiatives received the money to develop the new center, in partnership with the UMass Medical School, Gene-IT, Hypomatrix, and Massachusetts General Hospital.

The investment to create the new center will focus on four outcomes:

- expand the systems biology platform and provide technical assistance to researchers;
- evaluate the use of existing bioinformatics software by area colleges and universities;
- working with its advisory board, evaluate feasibility of a regional biocomputing grid in Central Massachusetts; and
- build a level of expertise that will position the region for potential federal funding in systems biology computing.

“Life sciences companies, health care institutions and university research centers have an increasing need to access vast amounts of publicly available biocomputing data and then analyze and interpret this data to move their scientific research forward.” explained Joseph Downing, COO of the John Adams Innovation Institute.

CAMBRIDGE – The Massachusetts Space Grant Consortium at MIT received an initial \$100,000 matching investment to support the aerospace industry in Massachusetts, leveraging an award by NASA.

The investment supports efforts by the Executive Office of Economic Development, the John Adams Innovation Institute, the Massachusetts Defense Technology Initiative, and others to promote the interrelated



“The investment in the work of the Advanced Technology Manufacturing Center in Fall River by the Innovation Institute provides targeted dollars

that can help to create new jobs and open the door for new companies, expanding the medical device industry in Southeastern Massachusetts.”

State Rep. Michael J. Rodrigues

activities of the defense, aerospace and homeland security clusters in the Commonwealth and to increase the potential of additional federal funding for research and facilities.

Under the initial investment, the Massachusetts Space Grant Consortium will undertake a survey of aerospace, defense, telecom and electronics industries, create a directory of companies, build a web site, host a business roundtable and conduct an entrepreneur competition with a \$10,000 prize.

Headquartered at MIT, the broad consortium includes 19 educational and research institutions, stretching from Cape Cod to Williamstown. The colleges and universities include: Boston University, Framingham State, Harvard University, Tufts, WPI, Holy Cross, Williams, Wellesley, and the Five College Astronomy Department (Amherst, Hampshire, Mt. Holyoke, Smith, and UMass Amherst). Also included are the Marine Biological Laboratory at Woods Hole and the Boston Museum of Science.

Current industry partners include Lincoln Labs, Mide Technology, MITRE, Payload Systems, Raytheon, Draper Laboratories, GE Aircraft Engines, Aerodyne Research, AeroAstro, David Clark Co., and Avidyne.

“Our desire at the John Adams Innovation Institute is to help build a collaborative framework leading to the growth of the defense, aerospace and homeland security clusters in Massachusetts,” said Robert Kispert, Director of Federal and University programs at the John Adams Innovation Institute. “This investment will help to jumpstart that effort and identify potential market opportunities.”

LOWELL – The UMass Lowell will conduct two pilot projects at the Massachusetts BioManufacturing Center, funded by a \$150,000 matching investment by the John Adams Innovation Institute.

The purpose of the award, which received high marks in an external competitive review, is to validate and support the business viability of the center, which is focused on improving the quality and cost of large-scale biomanufacturing.

The center, which seeks to help biotech companies move more effectively from research & development to manufacturing of new products in Massachusetts, is underwritten by a partnership of biotech industry leaders, academic research institutions, and state and local officials.

Industry partners include leading biotech companies such as Nova Biomedical, Antigenics, Cambrex, Genzyme, Invensys, Millenium, and Wyeth. Academic partners include UMass Dartmouth, Worcester Polytechnic Institute, and Tufts.

“This strategic investment by the Innovation Institute supports development

in a sustained way,” explained Patrick Larkin, Director of the John Adams Innovation Institute. “For our leading biotech companies, going from R&D to manufacturing should not also mean moving from Massachusetts to North Carolina or one of our other competitors—those jobs belong right here.”

“We are proud to be on the cutting edge of advanced manufacturing,” says UMass Lowell Chancellor William T. Hogan. “The Biomanufacturing Center is already helping biotech firms. These funds will expand the reach of the center—thereby helping UMass Lowell fulfill its mission of promoting sustainable economic development.”

FALL RIVER – An investment of \$79,645 to the Advanced Technology Manufacturing Center, operated by UMass Dartmouth, is targeted to enhance the capacity of the ATMC and demonstrate the development of a prototype of a micro-machined bio-sensor that can be used in both the medical device industry and the marine science sectors.

Three companies, including YSI Environmental, JPS Laser, and Waters Corporation, are supporting the effort. ATMC has also obtained more than \$68,000 in matching support .

The money will be used to upgrade ATMC’s micro-machining capability and offer product development assistance to small- and medium-sized medical device companies to attract new industry to the region.

Through this highly focused, strategic effort, ATMC’s goal is to support the growth of existing medical device companies in Southeastern Massachusetts and, at the same time, attract new investment and corporate activity in the region.

“The investment in the work of the Advanced Technology Manufacturing Center in Fall River by the Innovation Institute provides targeted dollars that can help to create new jobs and open the door for new companies, expanding the medical device industry in Southeastern Massachusetts,” said State Rep. Michael Rodrigues.

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The New Economic Wave

The president of Woods Hole Oceanographic Institution and the chancellor of UMass Dartmouth trade ideas and visions as they map out a potential “blue revolution” in Marine Science & Technology

(Continued from front page)

The two engaged in an exploratory dialogue with Innovation Institute Governing Board members about how best to shape the future development of an industry cluster that depends greatly upon the collaborative research of the two institutions and universities throughout Massachusetts.

Gagosian and MacCormack were joined by colleagues Brian Rothschild, Director of UMass Dartmouth’s School for Marine Science and Technology, Henrik Schmidt, Professor of Mechanical and Ocean Engineering at MIT, Jim Luyten, Executive Vice President at WHOI, and Michael Goodman of the Donahue Institute at UMass.



According to Gagosian, the potential economic benefits from increasing the predictive capability as a result of ocean exploration and research were enormous: hundreds of millions each annually in the recreation, commercial fishing, defense and homeland security sectors, and tens of millions each in the health & safety, transportation, and energy sectors.

What emerged from the discussion at the Governing Board meeting was a

“We can detect the outbreak of harmful algal blooms, but we have not been able to predict them. Better predictive capabilities would improve our ability to appropriately open or close beaches and shellfish beds, and predict red tide affects on fisheries.”



Dr. Robert Gagosian, President, Woods Hole Oceanographic Institution

rough consensus on the economic value of creating a network of coastal observation centers—wired and “wireless” research laboratories at sea, populated with newly developed devices.

An in-situ mass spectrometer, for instance, can rapidly detect and “fingerprint” trace amounts (parts per billion) of dissolved chemicals in real time. From naturally occurring petroleum seeps to broken sewer mains, from pollution caused by chemical spills to illegal dumping, this instrument can pinpoint the source to within a couple of meters. It is scheduled for commercialization in 2008.

Another device under development is an underwater vehicle, also slated for commercialization in the very near future. The port of Singapore, the largest port in the world, recently purchased two of these vehicles, at a cost of



about \$500,000 each. Given the increased need for security around shipping, the underwater vehicles have the potential to increase the ability of ports to observe ships for potential security issues without the same kind of slowdown security measures now entail enhanced accuracy of measurements of coastal and ocean waters can both enhance use of ocean resources, or avoid harm that may come from oceanic or atmospheric phenomena.

“We can detect the outbreak of harmful algal blooms, but we have not been able to predict them,” said Dr. Gagosian, “Better predictive capabilities would improve our ability to appropriately open or close beaches and shellfish beds, and predict red tide affects on fisheries.”

Dr. MacCormack said that the scientific ability to create more accurate measurements of the scallop population generated millions of dollars in fishing revenues for the scallop fleet in New Bedford.

As part of the discussion at the Governing Board meeting, there was also a consensus reached that there needed to be a steering committee created to act as a “call to implementation” to help guide the collaborative efforts.

Governing Board member Dr. Joan Reede of Harvard University raised the issue of workforce development as a key ingredient in growing the emerging cluster. Scientists and economists alike agreed that there was a significant need to develop initiatives to increase the skill level in the region for the high-level technicians needed.



“The Marine Science & Technology industry cluster represents a tremendous opportunity for economic



growth in southeastern Massachusetts and for the entire Commonwealth," said Ranch Kimball, Secretary of Economic Development. "By continuing to work closely together, businesses and research universities involved in marine science and technology can help create new jobs and market

opportunities."



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An Rx for Robust Growth and Global Competition in Life Sciences

A new Massachusetts initiative is moving ahead to establish a sustainable cross-sector collaboration to grow the Life Sciences industry

(Continued from front page)

The University of Massachusetts has joined with Harvard University, the Boston Foundation and the John Adams Innovation Institute in providing initial financial support for this effort. Additional collaborating organizations now include MassMEDIC, Massachusetts Biotechnology Council, New England Healthcare Institute, MIT's Center for Biomedical Innovation, Massachusetts Technology Leadership Council, and the Greater Boston Chamber of Commerce.

In addition, the Monitor Group has agreed to conduct a survey of more than 1,000 stakeholders to create an assessment of the cluster's strengths and gaps in its competitiveness.

"The important first steps of this cross-sector effort are to engage with key stakeholders, to listen to and capture their concerns, and to identify critical issues that impede or enhance opportunities for economic growth and industry competitiveness for the Life Sciences," said MTC Executive Director Mitchell Adams, a member of the John Adams Innovation Institute Governing Board.

"By investing in an integrated, comprehensive initiative and focusing our resources, we can develop a roadmap to success, drawing upon our remarkable concentration of world-class hospitals, research institutions, and biotechnology, medical device and pharmaceutical companies," said Tom Finneran, President of the Massachusetts Biotechnology Council and a member of the John Adams Innovation Institute Governing Board.

The initiative will work with the executives of Massachusetts' biotechnology, medical device, and pharmaceutical companies and the leadership of our universities, academic health centers, and research institutions, along with the state's premier industry councils, and other collaborating organizations. Ongoing, long-term staff support will be provided by the Innovation Institute. The multi-year effort is privately motivated and driven, but will

Life Sciences Initiative

EDITOR'S NOTE: This project is in the very earliest stages of its organization. Outreach to additional key sponsors, co-sponsors and collaborators are ongoing. If you would like to contact us on this project please email:

lifesciences@masstech.org

Convening Organizations



Preliminary Sponsoring Organizations



Preliminary Collaborating Organizations

Massachusetts Biotechnology Council
 Mass Medical Device Industry Council
 New England Health Care Institute

have the active participation of government representatives. A timeline with clear milestones has been established to steer the process forward.

“There is a strong interest in fostering cross-sector collaboration among the life sciences industries in Massachusetts. Our work together on this initiative will be critical to our ability to seize future opportunities in the life sciences,” said Tom Sommer, President of the Massachusetts Medical Device Industry Council.

MIT's Center for Biomedical Innovation
Mass. Technology Leadership Council
Greater Boston Chamber of Commerce

Follow for additional information on the Life Sciences Initiative:



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