



WELCOME TO THE MASSACHUSETTS TECHNOLOGY COLLABORATIVE

The Massachusetts Technology Collaborative is the state's economic development agency for the innovation economy and renewable energy. The agency is working to enhance the state's economic competitiveness, strengthen its high-tech industry clusters, and harness local, clean energy resources. MTC operates as a catalyst at the intersection of industry, academia, and government to create new economic opportunity and a cleaner environment for Massachusetts.

MTC has a rich history and tradition developed during the past 23 years of service to the Commonwealth. The agency uses a collaborative model for achieving public benefits. This document chronicles a legacy for which all those who have served at MTC can be proud. It also represents a guide for new and current members of the MTC family as we endeavor to improve the quality of life throughout the state.



EARLY YEARS

The Commonwealth's technology sector — consisting mainly of defense electronics and minicomputer manufacturing firms — was suffering in the early 1980s due to the lack of engineers with a comprehensive background in semiconductor design. To overcome this barrier, the Legislature established the Massachusetts Technology Park Corporation in 1982 with a charter to develop “a partnership of government and industry and education to create a training facility for semi-conductor and microelectronic technologies.”

The agency was created to conduct economic development, build a microelectronics center, and tackle difficult challenges working in collaboration with leaders in industry and academia. Embedded

in the enabling legislation were three core ideas — collaboration, flexibility and independence — that became the anchor and touchstones of an agency which transformed over the years into the Massachusetts Technology Collaborative (MTC).

Establishing its base of operations, the Commonwealth conveyed to MTC a 36-acre campus-style property in Westborough with an inventory of ten buildings that is rife with historical significance as the location of the Town of Westborough's first meeting house on Powder Hill and the former Lyman School for Boys, the first state-operated reform school in the United States.

MTC developed the Massachusetts Microelectronics Center on the campus, which consisted of a

74,000 square foot, state-of-the-art, integrated circuit fabrication facility. From 1982 - 1993, the Center provided hands-on training and education for more than 10,000 university students designing complex integrated circuits.

The state's innovation economy evolved over the years. A severe economic recession in the late 1980s, as well as major technological advances in silicon chips, brought the era of the Microelectronics Center to an end. MTC found itself in a very precarious position. With an expensive-to-operate capital facility built to train engineers for firms which no longer needed them, the agency struggled to find a new niche.

DEVELOPING A NEW MODEL

MTC worked with the state to arrange for an orderly shut-down of the Microelectronics Center in 1993 and sought to use the fabrication facility to support one or more technology firms while generating a future revenue stream for the agency. The Legislature broadened MTC’s charter in 1991 authorizing it “to foster the expansion of industrial and commercial activity in the Commonwealth by employing its resources, to the extent consistent with its educational activities, to advance additional, more direct economic development initiatives which support firms to maintain, expand and locate their business activities within the Commonwealth and thereby create and retain increased and more rewarding employment opportunities for our citizens.”

By the end of 1993, MTC had leased the fabrication facility to Kopin Corporation, a manufacturer of tiny flat panel displays. Agency staff and the Board of Directors began to carve out a role for MTC to support the growth and development of the state’s technology-based economy.



Kopin Corporation

Some realizations, which were incorporated into initial guidelines:

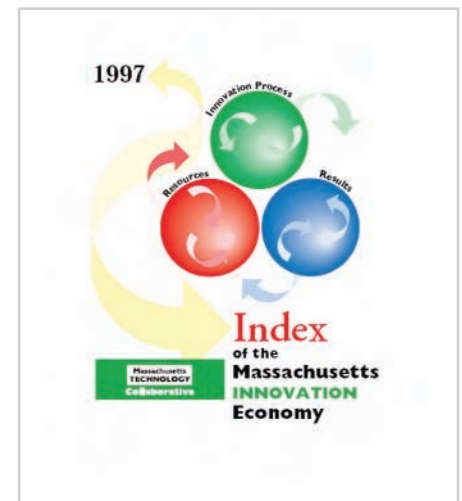
- It is hard to succeed if you do not bring the right group of stakeholders to the table. Successful projects need a dedicated, articulate, and credible “champion” for the cause.
- MTC does not have all the answers. Successful interventions to support an expanding, diverse, and dynamic economy are not possible unless based on accurate, complete and timely information. This requires a combination of data collection, listening and active engagement with a broad array of stakeholders.
- MTC should seek to identify discrete niches in which it can participate to support an expanding economy with specific targets, the participation of multiple parties, and a clear exit strategy.

Rather than investing directly in facilities and technologies, the agency's new approach centered on

developing a better understanding of “what's going on,” identifying barriers to economic growth, and working with stakeholders to fashion solutions. MTC began to catalyze positive outcomes by convening the experts, arming them with the data, and finding common ground.

The Board of Directors formally voted in 1994 to embrace this new model for technology-based economic development and adopt a more accurate name for the effort: the Massachusetts Technology Collaborative.

MTC began publishing well-received research studies and spearheading the formation of regional and industry-based cluster projects. The agency published the *Index of the Innovation Economy* in 1997 to identify and benchmark key



trends and indicators in the “innovation-driven” sectors of the Massachusetts economy and to measure how we compared with other leading technology states. Since its initial publication, the *Index* has grown and evolved to include in-depth topical analyses and recommendations for policymakers.

Federal R&D investments are a key driver of the innovation system in Massachusetts. From the outset, MTC has analyzed federal R&D funding trends and worked to increase federal funding opportunities for Massachusetts companies, universities, and non-profit research institutions. Agency studies highlighted the emerging technology trends and the important “spill-over” economic effects of R&D activity at universities such as Harvard, MIT, and UMass. The agency also increased the competitiveness of small, entrepreneurial businesses seeking federal R&D funding through the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

MTC catalyzed the creation of industry-based and regional cluster groups — aggregations of firms with common interests that could be advanced through collective action. MTC’s approach expanded on the work of Professor Michael Porter of the Harvard Business School, who defined economic development “clusters” as segments of industry where a region should have a natural competitive advantage, versus other localities, in nurturing the growth of emerging businesses.



Kariotis Building



Innovation Center



Weiss Center

A few examples of successful MTC cluster development projects include the following:

MassMEDIC

The MassMEDIC project originated from a request by the Governor’s Council on Economic Growth and Technology to implement a recommendation to establish an



industry forum for Massachusetts medical device companies contained in a report drafted by Professor Porter. MTC initially convened a small group of medical device executives, many of whom expressed a great deal of skepticism and trepidation at the prospect of establishing a formal alliance. MTC surveyed industry leaders and brought to light the fact that medical device companies were galvanized by a desire to enact federal reform of the Food and Drug Administration. MTC’s early efforts crystallized an emerging realization that the advantages offered by Massachusetts (proximity to universities, skilled workforce, demanding customers, and a network of suppliers, among others) trumped complaints about “the cost of doing business” in Massachusetts.

MTC provided the institutional support to form MassMEDIC in 1996 as a new trade association for Massachusetts medical device companies. MTC provided financial support, staff support, and provided office space for the trade association during its formative years. MassMEDIC members were able to leverage their collective clout to achieve Congressional enactment of comprehensive FDA reform. MassMEDIC has developed into an independent, self-sustaining industry association that has built a dedicated and energized membership of more than 150 companies.

Berkshire Connect

With a growing number of multimedia, arts and entertainment companies, Berkshire County’s lack of affordable, high-speed broadband data services threatened to dash economic activity in the region. The Legislature requested that MTC lead a collaborative effort, known as Berkshire Connect, to analyze the status of the region’s telecommunication’s infrastructure, evaluate alternatives, and develop strategies to address the region’s near-term and long-term needs. MTC’s efforts were bolstered by a robust Steering Committee that

included many of the region’s business, cultural, educational, and community leaders.

Berkshire Connect pursued a creative solution that involved aggregating the demand of the region’s users to attract a strategic partner that would build a new telecommunications infrastructure to deliver cost-competitive broadband services to Berkshire County. Berkshire Connect has served as an affinity group to more than 65 local businesses with customers experiencing up to 50% lower costs for telecommunications services.



MAJOR NEW RESPONSIBILITIES

By the late 1990s, MTC was recognized in many circles as a creative and dependable economic development agency that could find collaborative solutions to complex challenges facing the state's economy. This led to the agency being chosen to implement two very different mandates with the Renewable Energy Trust and the John Adams Innovation Institute.

Renewable Energy Trust

When the state embarked on its landmark transformation of the multi-billion dollar electricity industry, policymakers created the Renewable Energy Trust with the hope that the Commonwealth's citizens would reap the economic and environmental benefits of clean energy.

Massachusetts policymakers recognized that developing the state's clean energy resources and helping renewable energy companies grow in Massachusetts requires comprehensive strategies to overcome long-standing barriers such as siting, access to capital and interconnection issues.

With its tradition of building consensus and forging solutions to difficult challenges facing the state's innovation economy, MTC was entrusted with the responsibility for making clean energy work in Massachusetts.

The creation of the Renewable Energy Trust was initially hampered by a legal challenge to the excise tax on electricity consumption which provides the funding for projects.

The Massachusetts Supreme Judicial Court upheld the constitutionality of the tax in April 2000.

The first priority for MTC was to satisfy the Legislature's mandate to establish a Waste to Energy Program. The agency's staff successfully awarded 138 grants in March 2001 to help Massachusetts cities and towns totaling approximately \$54 million.

MTC has developed and implemented creative programs and initiatives that have garnered a reputation for the Trust as among the leading state clean energy funds in the country. MTC has put ideas into action to produce results for the ratepayers of Massachusetts.

For example:

- A successful partnership with the state's Department of Education spurred school districts across the state to build healthier, more energy-efficient places for students to thrive. Infusions of competitive grant funding for high performance green schools and buildings provided a strong foundation for the RET to begin developing clean energy solutions.
- Tackling its economic development mandate, the Trust made direct investments in clean energy companies such as Evergreen Solar and Konarka Technologies. The Trust is

\$119 MILLION IN LOANS, ENERGY TRANSACTIONS, AND GRANTS TO SUPPORT MORE THAN 350 PROJECTS ACROSS MASSACHUSETTS AND THE REGION.

strengthening a growing clean energy cluster that now employs more than 10,000 people and features exciting companies conducting cutting-edge research and development.

- In 2004, the Trust launched its most significant activity to support the generation of clean electricity for the New England grid through the \$55 million Massachusetts Green Power Partnership. This unique program provides long-term funding commitments to purchase renewable energy certificates and other price supports that are critical to for clean energy projects seeking permanent financing to build new clean power plants such as wind, hydroelectric power, and biomass.
- The Trust is working to increase consumer demand for renewable energy by offering a tax-deductible clean energy choice that includes matching grants for communities. Policy development, community outreach, and education campaigns are building new constituencies that make it easier to tap in the state's vast renewable resources.

John Adams Innovation Institute

As part of a landmark economic stimulus bill enacted in 2004, the State Legislature assigned MTC responsibility for administering the new \$35 million John Adams Innovation Institute. The Institute is fulfilling its mission of promoting the growth of the Massachusetts Innovation Economy by undertaking analyses of critical issues facing Massachusetts, identifying needed actions and resources, promoting collaboration among key stakeholders, influencing policy decisions, and providing strategic investments for technology-based economic development.

The economic stimulus legislation established two distinct Funds within the Innovation Institute:

- The \$15 million Innovation Institute Fund is intended to support regional initiatives that will spur technology-based economic development across the Commonwealth, with a particular focus on underserved regions; and
- The \$20 million Massachusetts Research Center Matching Grant Fund is intended to support activities at universities and not-for-profit research institutes that will increase the likelihood of securing additional federal funding for R&D and increase the economic benefit derived from the conduct of that R&D to the Commonwealth.



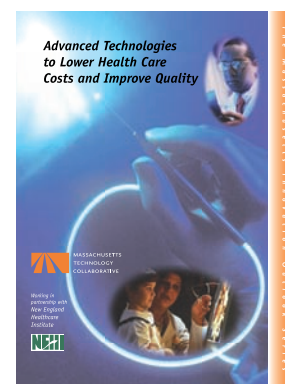
On December 20, 2004, MTC Executive Director Mitchell Adams (center) met with (left to right): University of Massachusetts Lowell Chancellor William T. Hogan; State Representatives David Nangle and Thomas Golden, Jr.; State Senator Steven Panagiotakos; Dr. Julie Chen, Professor of Mechanical Engineering at UMass Lowell; and Lowell Mayor Armand Mercier. They gathered to announce a \$5 million award to develop a new Center of Excellence in Nanomanufacturing at UMass Lowell. This is the first major award provided by MTC's John Adams Innovation Institute.

In 2004, MTC established the Innovation Institute as a new operating division that incorporated the two Funds created by the Legislature as well as the full portfolio of MTC initiatives such as the Index, wireless learning initiative, nanotechnology project, and the advanced health technologies initiative. The Board of Directors voted in September 2004 to approve the Business Plan for the Institute and make appointments to a Governing Board that is overseeing investments that will lead to new economic opportunities across the Commonwealth.

Health Care Initiative

MTC published two reports in partnership with the New England Healthcare Institute that highlight the ways advanced health care technologies can both reduce costs and save lives. MTC is working with all of the major players in the health care arena to catalyze statewide implementation of computerized physician order entry systems in Massachusetts hospitals. CPOE systems involve point-of-care physician ordering of medications,

procedures, and tests that reduce errors, improve quality of care, and reduce costs in hospital settings. The agency is also part of the Massachusetts eHealth Collaborative launched by Governor Romney in December 2004 to improve the quality of care patients receive and achieve costs savings that can be redeployed to serve more citizens.



MTC TRADITIONS GUIDE AGENCY'S FUTURE

If the past is any indicator of the future, MTC will face many twists and turns as it seeks to improve the climate for technology-based economic development in Massachusetts. The agency is guided by lessons learned and the traditions it has developed during its more than twenty year history.

Commitment to public service, supporting innovation, cultivating understanding, collaborating with key stakeholders and catalyzing outcomes are the five traditions that inform how MTC conducts business as a public economic development agency.

Our continued success rests squarely on the shoulders of current and future MTC employees, who will be called upon to uphold and enhance the enduring traditions upon which MTC was built.



PUBLIC PURPOSE

Producing tangible results that improve the quality of life for Massachusetts citizens.

INNOVATION

Supporting innovation in all facets of the state's economy and recognizing the inherent power of new ideas to create meaningful public benefits.

UNDERSTANDING

Gathering good data for an informed dialogue that leads to sound policy development at the state level.

COLLABORATION

Building long-term partnerships that generate effective solutions.

CATALYTIC ACTION

MTC serves as a catalyst providing support to leaders in government, academia, and industry to accelerate job growth in the state's knowledge-based economy.



Massachusetts Technology Collaborative Board of Directors

MTC operates as a catalyst at the intersection of government, industry, and academia. The agency's management and staff appreciate the service of these professionals who help to advance important initiatives.

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