



**Supporting Growth in the  
Commonwealth's  
Innovation Economy**

**Business Plan of the**

**JOHN ADAMS INNOVATION INSTITUTE**



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE

**September 30, 2004**

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## Executive Summary

The John Adams Innovation Institute (Innovation Institute) is an operating division of the Massachusetts Technology Collaborative (MTC). Its mission is to promote the growth of the Innovation Economy in the Commonwealth. The Innovation Institute does this 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.

As detailed in the business plan, the Innovation Institute will address major challenges and opportunities faced by the Commonwealth. It is guided by the basic premise that innovation is critical to growth within technology-intensive industries and an improved living standard in the Commonwealth. As such, the organization will spur the development and application of technology and work to establish an environment in Massachusetts in which technology-based enterprises can compete effectively. In so doing, the Innovation Institute will take steps to address regional disparities in the Commonwealth with respect to technology-related resources and institutions.

Working in close concert with stakeholders in industry, academia and government, the Innovation Institute will take action across numerous fronts to provide an opportunity for all citizens of the Commonwealth to benefit from innovation. Specifically, the organization will fill gaps in the existing economic development landscape through three programs:

- **Grantmaking.** The economic stimulus package enacted in December 2003 charged MTC with the responsibility for managing two funds on behalf of the Commonwealth – the Innovation Institute Fund (Regional Fund) and the Research Center Matching Grant Fund. The Innovation Institute Fund (Regional Fund) will be used to support regional technology-based economic development initiatives across the Commonwealth. Grants will be provided to public and not-for-profit organizations to enable them to undertake initiatives that are intended to create and maintain a favorable environment for the establishment, attraction, retention and expansion of technology-intensive businesses. The Research Center Matching Grant Fund will be used to support efforts to enable university-based research centers to develop and transfer technology to industry in the Commonwealth. Grants will be provided to establish Centers of Excellence in key technologies such as nanotechnology and biotechnology as well as leverage federal funding for research deemed critical to economic growth. The Innovation Institute will develop other funding programs in response to legislative mandates and as resources permit.
- **Development assistance.** The Innovation Institute will provide various forms of non-financial assistance on projects that are aligned with its mission and designed to accomplish stated goals and objectives. In this regard, the Institute will focus its attention on efforts to promote the development of technology-intensive industries (or clusters) in the Commonwealth and to deploy technology to address specific social and economic issues in the Commonwealth. In both types of collaborations, the Innovation Institute serves principally as a catalyst and facilitator for discussions among interested parties. In this

regard, it works with representatives of relevant constituencies to define problems, identify potential solutions, and take necessary actions. Over the next year, the Innovation Institute plans to undertake projects related to the application of technologies in the healthcare sector, the expansion of broadband service throughout the Commonwealth, the deployment of wireless laptops in Massachusetts' classrooms, and the establishment of a new Nanotechnology Initiative. In addition to these major projects, the Innovation Institute will continue to investigate additional areas in which it can play a useful role.

- **Research and analysis.** The Innovation Institute will carry out independent, nonpartisan studies on issues related to science, technology, competitiveness and economic development in the Commonwealth. The principal purpose of these studies is to provide objective information and practical recommendations to decision makers in industry, academia, and government in order to effect needed policy changes and other reforms. The results of research and analytical work will be summarized in publications written for diverse audiences and further disseminated through seminars, conferences and other activities as part of an integrated education program. In this regard, the Innovation Institute will continue to produce two publications on an annual basis: The Index of the Massachusetts Innovation Economy and The R&D Funding Scorecard: Federal Investments and the Massachusetts Innovation Economy. In addition, it will aim to undertake one or two other studies in the upcoming year and expand activities in later years as resources allow. All studies undertaken by the Innovation Institute will be closely linked to its grantmaking and development assistance programs.

The MTC Board of Directors has statutory authority for the corporation and its operating divisions. In this capacity, the Board has the fiduciary responsibility for safeguarding funds that have been allocated to the Innovation Institute and ensuring that these monies are used to further the goals articulated in relevant legislation. As delineated in the economic stimulus legislation, the MTC Board of Directors will appoint a Governing Board to oversee the two funds established by the Legislature. The Governing Board will provide direct oversight of the Innovation Institute as delegated by the MTC Board of Directors. In this capacity, the Governing Board will be called upon to review annual operating plans and budgets, approve certain expenditures of monies from the Innovation Institute Fund (Regional Fund) and the Research Center Matching Grant Fund, recommend larger investments to the MTC Board of Directors, and serve as an advisory committee with respect to all other activities undertaken by the division.

The Innovation Institute will operate with a small core program staff. It will also draw on external experts as required as well as resources resident within MTC corporate offices, including corporate planning, communications, finance and administration, legal counsel, and information systems.

The Innovation Institute has been established as a new operating division at MTC, integrating the corporation's economic development activities. The services of the Innovation Institute are expected to extend beyond the five year duration of the economic stimulus funds. Operating support for the Innovation Institute will come from multiple sources such as the economic stimulus funds, MTC corporate reserves, the MTC line item appropriation, and other internal and external resources. The organization will continue to work closely with the administration and

State Legislators to ensure that resources needed for various programs are made available. The organization will also take aggressive steps to secure funding from other sources, including the federal government, foundations, and private industry. It is through these efforts the Innovation Institute will be able to provide ongoing services and support as the Commonwealth's technology landscape evolves in the years ahead.

## Introduction

The State Legislature created the Massachusetts Technology Park Corporation (doing business as the Massachusetts Technology Collaborative) in 1982 to foster the development of technology-based sectors in the Commonwealth.<sup>1</sup> Operating as a public instrumentality, the organization has undertaken numerous initiatives over the past 20 years. These have included efforts to ensure an adequate supply of engineers trained in integrated circuit design, provide widespread access to high speed telecommunications services, promote the use of advanced technologies in the healthcare sector, encourage greater use of renewable energy to meet growing energy requirements, and foster a constructive dialogue concerning technology-based economic development in the Commonwealth. To these ends, the organization has prepared various studies, fostered collaborative relationships, and provided funding to universities, not-for-profit organizations, local communities and private companies in Massachusetts.

Building on *existing* activities and a *new* legislative mandate, the Massachusetts Technology Collaborative (MTC) has established the John Adams Innovation Institute (the *Innovation Institute*) as an operating division of the corporation. In many respects the decision to create the Innovation Institute within MTC represents the natural evolution of the organization. It brought together a number of related activities under the banner of the Innovation Institute and created a new management structure to ensure greater coordination among these activities. However, it also was undertaken in direct response to legislation enacted at the end of last year. The State Legislature voted and the Governor approved an economic stimulus package that contained provisions to enable the Commonwealth to invest in initiatives deemed important to the future of Massachusetts.<sup>2</sup> Specifically, the legislation charged MTC with responsibility for managing two investment funds under the auspices of the John Adams Innovation Institute:

- The Innovation Institute Fund (Regional Fund) is intended to support regional initiatives that will spur technology-based economic development across the Commonwealth;
- The 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.

The provision of these stimulus funds represents for the first time in the Commonwealth the creation of a formal framework for making substantial investments in technology-based economic development initiatives. It will allow the Innovation Institute to provide grants to organizations based on the merit of proposals and expand associated programs. Both funds are integral components of the John Adams Innovation Institute. However, it is important to note that the Innovation Institute will also undertake activities beyond those envisioned in the economic stimulus package, including activities mandated by other legislation.<sup>3</sup> These

<sup>1</sup> Chapter 312 of the Acts of 1982

<sup>2</sup> Appendix A contains the legislation establishing the John Adams Innovation Institute.

<sup>3</sup> MTC has received annual appropriations from the State Legislature to carry out activities in furtherance of its public purposes commencing with the Fiscal Year 1995 budget. Most recently, the State Legislature appropriated \$3,025,000 in Section 2 (Line Item 7007-1200) of the Fiscal Year 2005 budget for the Commonwealth (Chapter 149 of the Acts of 2004). The FY05 appropriation includes an allocation of \$2,000,000 to support the pilot wireless learning initiative in Berkshire County. Line Item 4000-0115 of the FY05 budget contains a \$1,000,000 appropriation for MTC "to implement inpatient hospital-based computerized physician order entry systems in eligible hospitals in Massachusetts for the purposes of improving patient safety and hospital efficiency.

complementary activities will be supported by other sources of funding, including MTC reserve funds, sponsorships and fees, foundation support, and additional government grants.

This document presents a business plan for the operating division, including plans for the Innovation Institute Fund (Regional Fund) and Research Center Matching Fund. Following this introduction, Section 2 describes the context in which the organization operates, noting the important issues that the Commonwealth needs to address with respect to technology-based economic development. Section 3 presents a discussion of the purpose of the Innovation Institute as reflected in its mission, goals and objectives, and operating principles. Section 4 presents a detailed description of the three programs – grantmaking, development assistance, and research and analysis – that the Innovation Institute will focus on over the next three to five years. Section 5 discusses the organizational structure, governance, management and staffing of the Innovation Institute. This is followed by a discussion of key aspect of operations in Section 6. The last section presents a financial plan for the Innovation Institute, including *pro forma* financial statements.

## Context

Backed by the State Legislature, MTC created the Innovation Institute in direct response to the challenges and opportunities faced by the Commonwealth. In this regard, several issues merit highlighting:

- Innovation is critical to productivity growth and improved living standards in the Commonwealth.** Numerous economists have pointed to the role that technology plays in the economy, demonstrating that innovation is the most important determinant of economic growth and higher income over the long-term. The “new growth theory” is based on the premise that technological change responds to economic incentives and is central to the process of economic development. In this regard, Massachusetts has a long history of technological innovation buoyed by strong research institutions, vibrant entrepreneurship, a well-educated labor force, a well-developed infrastructure, and a ready supply of risk capital. Investments in the development, commercialization *and* application of technology have helped fuel growth in productivity and income in the Commonwealth.

In 2001 (the latest year for which data are available), productivity in Massachusetts as measured by GSP per employee was \$69,648 versus \$60,735 in the United States. Similarly, average per capita income in Massachusetts at \$44,970 in 2001, was 26 percent higher than the national figure of \$35,558. However, as shown in Table 1, the Commonwealth lags other states – including the resource-rich state of Alaska – on these important measures.

**Table 1. State Ranking - Productivity and Income (2001)**

Rank	GSP per Employee	Average Per Capita Income
1	DE \$ 80,298	DE \$ 50,918
2	NY \$ 78,520	CT \$ 48,409
3	CT \$ 78,404	AK \$ 45,175
4	NJ \$ 76,525	MA \$ 44,970
5	AK \$ 70,620	NY \$ 43,329
6	MA \$ 69,648	NJ \$ 42,966

Source: Data originate from the Bureau of Economic Analysis

Given low population growth and the absence of significant natural resources, Massachusetts is increasingly dependent on innovation for economic growth. Massachusetts will need to take steps to foster innovation to ensure the future prosperity of the citizens of the Commonwealth.

- While the Commonwealth has benefited from innovation, regional disparities in the Commonwealth continue to persist.** As shown in Table 2, there is significant variation in the extent to which different areas of the state have benefited from the growth of technology-

intensive sectors. In Middlesex County almost one out of five jobs is found within sectors that invest significant resources in R&D and/or employ a highly-educated labor force. In fact, this is one of the most technology intensive counties in the United States. However, there are also a number of areas in the state where technology-based industries provide only a small fraction of the jobs.

**Table 2. Personal Income and Employment in Massachusetts (2001)**

<b>Massachusetts Counties</b>	<b>Technology-based Employment</b>	<b>Technology-based Employment as a percentage of Total Employment</b>	<b>Average Income per Capita</b>
Middlesex	152,931	17.6%	\$46,875
Essex	34,589	12.2%	\$38,438
Norfolk	29,560	8.6%	\$48,213
Suffolk	22,633	3.9%	\$40,644
Worcester	15,797	5.3%	\$33,305
Bristol	6,736	3.4%	\$30,060
Plymouth	6,340	4.2%	\$35,865
Hampden	4,968	2.7%	\$28,505
Barnstable	4,530	6.2%	\$38,649
Berkshire	2,619	4.6%	\$31,808
Hampshire	1,120	2.4%	\$28,303
Franklin	601	2.5%	\$29,293
Nantucket	129	3.3%	\$47,370
Dukes	88	1.8%	\$39,710
<b>Massachusetts</b>	<b>277,786</b>	<b>8.9%</b>	<b>\$38,945</b>

Note: County data may not add up to state data due to disclosure issues.

Source: Data originate from the Census Bureau and the Bureau of Economic Analysis (BEA).

It is important to note that there is a close relationship between the extent to which an area has been successful in attracting technology-based industries and average income – areas that have attracted technology-intensive based have higher incomes.<sup>4</sup> In some respects, regional disparities are a function of the particular strengths of Harvard, MIT and other major research institutions concentrated in the Greater Boston area. These institutions have spawned numerous companies, served as a major source of new technology, and provided thousands of graduates that have gone on to work in local firms and organizations. Differences among regions have persisted because of the tendency of companies and institutions in related industries to cluster in particular geographic areas. Agglomeration effects contribute to investment and subsequent growth as a result a series of reinforcing actions. Put another way: success begets success.

Massachusetts will need to overcome historical patterns of development in order to address regional disparities in employment and income. This will require regional investments that are guided by coherent development strategies to foster the creation of new technology-

<sup>4</sup> The correlation between the percentage of employment in technology-intensive industries and per capita income is roughly 0.75 after dropping two outliers – Nantucket and Dukes counties.

based companies, spur the development of new products and services, and encourage the adoption of productivity-enhancing technologies.

- **Growth in innovation economies requires cultural changes in different regions.** The ability to implement effective regional technology-based economic development strategies is substantially affected by the culture that exists within different regions. In this regard, the existence of a strong entrepreneurial culture is one important element that contributes to regional economic growth. MTC has examined one proxy for measuring entrepreneurial activity in the form of participation in the federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. Together, these two programs represent the largest seed capital program for technology entrepreneurs in the world. As shown in Table 3, significant regional differences exist throughout the Commonwealth. To meet the goals of economic development, Massachusetts will need to encourage and support entrepreneurial activity in every region of the Commonwealth.

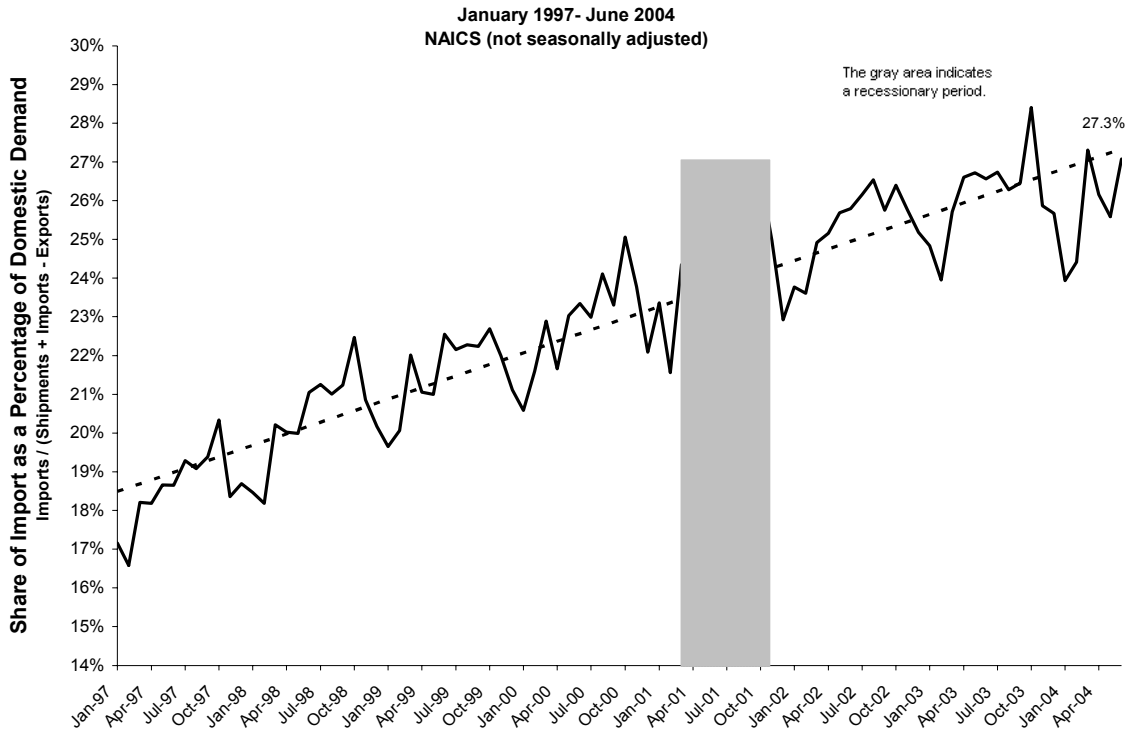
**Table 3. SBIR/STTR Awards per Capita**

Region	1993	1994	1995	1996	1997	1998	Average 1993-1998
<b>Berkshire</b>	\$0.00	\$0.51	\$0.00	\$0.52	\$3.89	\$0.00	\$0.82
<b>Cape &amp; Islands</b>	\$10.38	\$6.80	\$12.37	\$13.36	\$8.11	\$11.10	\$10.35
<b>Central</b>	\$1.77	\$4.05	\$5.43	\$5.84	\$11.01	\$12.80	\$6.82
<b>Greater Boston</b>	\$31.92	\$25.22	\$39.39	\$42.20	\$45.86	\$42.14	\$37.79
<b>Northeast</b>	\$19.65	\$16.54	\$29.62	\$26.74	\$38.95	\$39.43	\$28.49
<b>Pioneer Valley</b>	\$4.27	\$3.09	\$4.27	\$8.11	\$2.62	\$5.43	\$4.63
<b>Southeast</b>	\$3.22	\$0.17	\$0.07	\$0.61	\$1.60	\$0.30	\$1.00
<b>Statewide</b>	\$18.76	\$14.65	\$23.08	\$24.74	\$27.67	\$26.31	\$22.53

Source: SBA annual SBIR/STTR awards detail data

- **Growth also depends on the ability of companies in key sectors of the innovation economy to deal with greater competition.** Industries such as information technology, biotechnology, medical devices, healthcare, and financial services have been the primary source of new jobs and wealth creation in the past decade. However, competition from other parts of the world is intensifying. While trade liberalization has opened up new markets for companies in Massachusetts, it has also exposed them to greater competition from abroad. For example, as shown in Figure 1, imports as a percentage of apparent domestic consumption of manufactured goods in the United States increased from 17 percent to 26 percent between 1997 and 2003. Moreover, the trade deficit in manufactured goods ballooned to \$489 billion in 2003 as a result of a strong dollar, relatively weak economic performance among trading partners, non-tariff barriers that hinder the sale of U.S. made goods, and a flood of cheaper products produced in low-wage countries such as China.

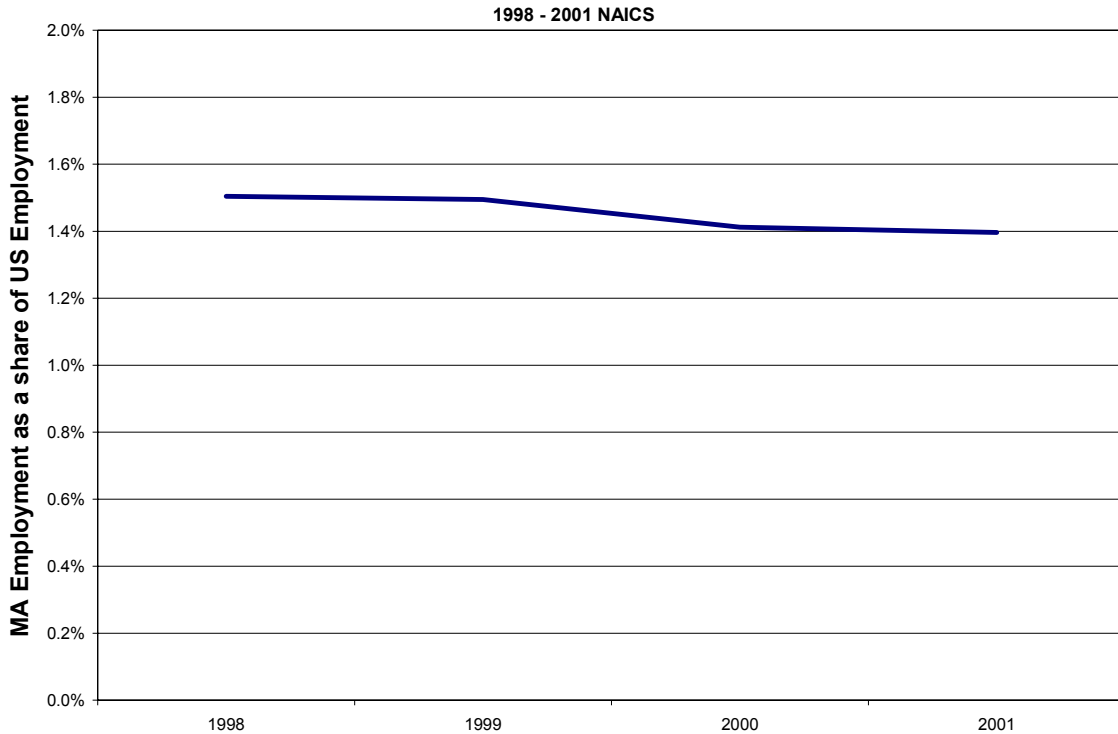
**Figure 1. Imports as a Share of Domestic Consumption of Manufactured Goods**



Source: Data originate from the International Trade Commission, the Bureau of Economic Analysis & the Census Bureau

However, it is important to note that competition is not limited to other countries: Massachusetts companies' also face competition from firms in other states. As shown in Figure 2, technology-based industries in Massachusetts have lost market share (as reflected in employment) to other areas of the country. This finding is consistent with MTC's annual Index of the Massachusetts Innovation Economy. The Index tracks changes in employment in key industry sectors that comprise the state's Innovation Economy and benchmarks them against the Leading Technology States. Growth in employment in many of these key sectors continues to lag competitors – particularly California. Massachusetts was tied with New York for the lowest overall growth in employment in the key industry sectors between 1999 and 2003.

**Figure 2. Massachusetts' Share of Employment in Technology-based Industries in the United States**



Source: Data originate from the Census Bureau

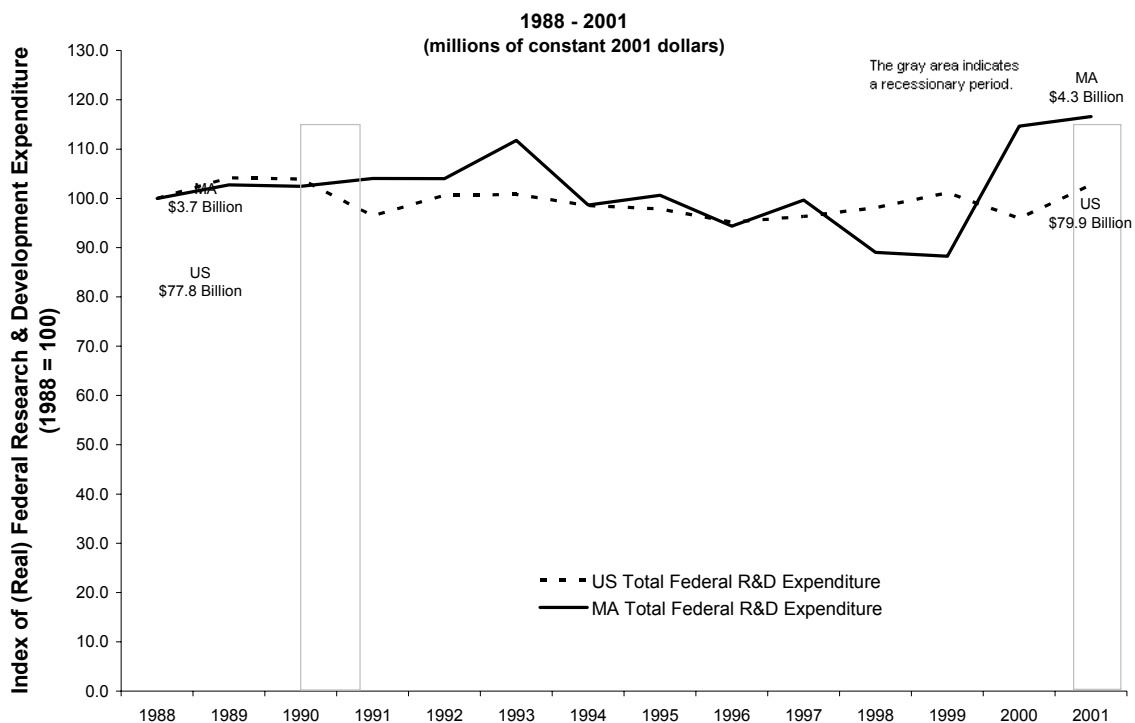
In the light of increased competition, companies in Massachusetts will have to redouble efforts to create and sustain a competitive advantage in global markets in the coming years. Firms in every industry will need to continually develop and introduce distinctive products and services, while also reducing costs. Innovation will be key.

- **While R&D spending continues to be high, there are signs that Massachusetts may face a harder time attracting the funding needed to fuel innovation.** Economic prosperity requires investment in the knowledge-economy, beginning with research and development (R&D). R&D provides a foundation for technological innovation, paving the way for the development of new products and processes. According to the National Science Foundation, more than \$14.7 billion was spent on R&D in Massachusetts in 2001 (latest year available), representing roughly 5.1 percent of the total gross state product (GSP) in that year.<sup>5</sup> More than three-quarters of all R&D undertaken in the state is performed by industry. Universities account for 14 percent of R&D activity in the Commonwealth with the remaining share split between federal laboratories and various non-profit institutions. Clearly, R&D takes a great deal of money. Here it is important to note that the industry provides roughly 63 percent of the funding needed to pay for R&D in the Commonwealth with the federal government providing 35 percent of total R&D funding.

<sup>5</sup> In contrast, the ratio of R&D to gross domestic product for the nation as a whole was approximately 2.6 percent.

As shown in Figure 3, the amount of money flowing from the federal government into Massachusetts to fund R&D increased dramatically in the last few years. Still, while the Commonwealth has been successful in attracting a significant share of federal R&D funding, there is more and more competition among institutions in different states for a share of the pie. One indication of this competition is that the Massachusetts' share of federal R&D funding for colleges and universities has dropped. During the period from 1996 to 2001, federal R&D funding to Massachusetts colleges and universities grew at two-thirds of the rate of the nation as a whole, ranking dead last among the Leading Technology States and 47<sup>th</sup> out of all states. In addition to providing an immediate economic impact, federal funding for research at colleges and universities in the Commonwealth is needed to provide a solid foundation for innovation, including the creation of a well-educated labor force.

**Figure 3. Trends in Federal R&D Funding**



Source: National Science Foundation (NSF):- Division of Science Resources Statistics (SRS), Survey of Federal Funds for Research and Development: Fiscal Years 2001, 2002, and 2003.

It is also important to note that federal agencies such as the National Science Foundation are increasingly awarding funds to research centers rather than directly to principal investigators. These large, multi-year center-based grants often have a cost-sharing requirement that obligates grant recipients to contribute 10 to 20 percent of the total cost of the operations of the center. Cost sharing is an issue of eligibility, rather than an evaluation criterion used in selecting particular research centers for awards. Therefore, efforts to increase the competitiveness of research centers in Massachusetts hinges on an ability to strengthen the capabilities of centers in ways that address the objectives of funding agencies, including the commercialization of research. It is not simply a matter of providing more money.

Pursuing federal center grants is typically but one element of an emerging pattern of activities by states to leverage federal resources for technology based economic development. Several states, including New York and California, have made major strategic investments in Centers of Excellence that have the academic talent, financial and physical resources, and established collaborations with industry to pursue multiple R&D funding opportunities in technologies that appear to support significant economic growth. As shown in the recent Battelle Memorial Institute/Mass Insight technology roadmap/strategic alliance study, "Choosing to Lead: The Race for National R&D Leadership and New Economy Jobs, "Massachusetts is well positioned to pursue multiple Center of Excellence-based strategic growth opportunities."

- **Economic growth depends on an ability to translate research into commercial products that are produced by companies in Massachusetts.** The full benefits of research efforts are realized when new products reach the market. With respect to the Commonwealth, these benefits are maximized when new products are produced by companies based in Massachusetts. Success requires the ability to direct research toward market needs and closely couple research with ongoing commercialization efforts. Moreover, while R&D supplies the raw material for innovation, companies need to invest even greater resources in marketing and sales, production, and distribution in order to bring commercial products to market. This type of investment lies almost exclusively within the province of private industry. Companies must be willing to make these investments and be able to tap equity and debt finance markets for needed capital.

Data suggests that companies in Massachusetts may face challenges in this regard. Drawing on NIH SBIR funding trends as an example of the earliest stages of moving from concept to market, Massachusetts' market share of NIH SBIR awards has dropped from 25 percent to 15 percent over the past five years, while the share of funds received by California companies has remained constant at 19 percent. Similarly, Massachusetts share of venture investments in biotechnology dropped from 26 percent in 1995 to 11 percent in 2000, while the share of comparable investments in California grew from 31 percent to 40 percent. There are signs of renewed growth, however. Massachusetts' share has risen in the last year or so, while that of California has dropped. New drug approvals show similar trends. As these drugs move from approval to market, biotech companies become heavily courted targets of opportunity as each state tries to capture a share of the downstream value-added of biotech manufacturing. While perhaps not as visible, this pattern is repeated as successive emerging technologies reach the commercial marketplace.

- **It also requires a willingness and ability on the part of users to adopt new technology.** Productivity is enhanced through the adoption of new technologies that generate additional value. Companies can use technology to improve quality, reduce turnaround time, and lower costs. Schools can incorporate technology into new curricula to enrich learning and educational performance. The adoption of technology in hospitals can drive down costs and improve patient care. Government can adopt technology to reduce the cost of service delivery and make institutions more responsive to the needs of citizens. While the adoption of new technology offers significant promise, there are numerous instances where users are hesitant to purchase new technology or are otherwise constrained with respect to making investments. Effort is need to remove barriers to the productivity-enhancing technologies.

- **Concerted action is needed to ensure that all communities in the Commonwealth are in a position to benefit from technological innovation.** Action is needed on numerous fronts to provide an opportunity for all citizens of the Commonwealth to benefit from innovation. First, strong research institutions are needed to generate and transfer new knowledge to companies. Second, the workforce needs to be well educated and have specific skills that are required by local industry. Third, telecommunications, transportation, energy, land and other elements of the regional infrastructure need be in place and readily available. Fourth, companies need to be able to access needed financing at a cost that is consistent with potential rewards and risks. Finally, the general investment climate as reflected in relevant laws and regulations needs to be conducive to private investment.

While all of these factors are relevant to all economies, each region in the Commonwealth needs to take its particular assets and comparative advantage into account in fashioning an appropriate development strategy. With this in mind, all institutions that are involved in technological innovation and economic development need to be guided by a shared vision. This requires an ability to pull together stakeholders, agree on required actions, and marshal requisite resources.

- **The Innovation Institute is part of an extensive fabric of public, quasi-public and private economic development activity throughout the Commonwealth.** One of the inherent strengths of the state's economy is its diversity. This diversity extends not only to traditional manufacturing and service sectors, but also throughout the state's innovation economy. Complementing this diversity, the Commonwealth has achieved a competitive, critical mass of activity across many of these sectors. This in turn has led to the creation of multiple public, quasi-public and private institutions that play important roles in economic development on a state-wide and regional basis.

The Massachusetts Department of Economic Development is charged with developing and executing the state's economic development strategy. It coordinates much of the public and quasi-public economic and related workforce development activities of the Commonwealth. These activities include "traditional" business attraction, expansion and retention programs; business assistance services; seed venture financing; and state-backed asset-based lending programs.<sup>6</sup> The Massachusetts Technology Collaborative occupies a unique position within the state's overall economic development framework through its focus on the broad spectrum of technology-based economic development strategies and activities that impact the state's innovation economy.

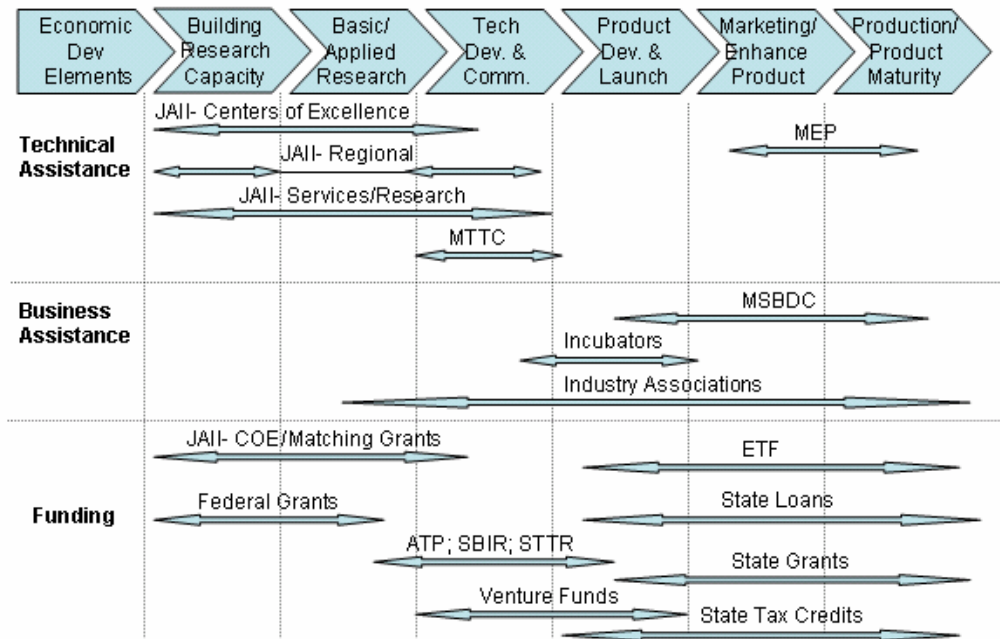
Much of the Commonwealth's economic development fabric exists outside of the public and quasi-public sectors, particularly in the context of technology-based economic development. The public and private universities are key elements of this fabric. In addition, industry specific associations, such as the Massachusetts Biotechnology Council, MassMEDIC, the Massachusetts Software Council, and the Massachusetts Telecommunications Council, as well as cross-cluster organizations like the Massachusetts High Technology Council and Associated Industries of Massachusetts, have evolved to meet the needs of the state's innovation economy. Many of these have their own cluster growth strategies, provide tailored business assistance, play an important role in workforce development, and significantly expand the infrastructure for economic development.

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<sup>6</sup> Appendix B provides an overview of these incentives.

Major elements of the Commonwealth's technology-based economic development fabric are presented in Figure 4.

**Figure 4. MA Innovation Economy Development Landscape**



Source: Massachusetts Technology Collaborative

## Purpose of the Innovation Institute

### Mission

The mission of the Innovation Institute is to promote the growth of the Innovation Economy<sup>7</sup> in the Commonwealth. The Innovation Institute does this 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. Through our commitment to this mission, we will be known as the state's lead institution for technology-based economic development.

### Goals and objectives

In keeping with its mission, the Innovation Institute has established the following goals and objectives:

- Goal 1: Enhance institutional and industry competitiveness throughout the Commonwealth.
  - Objective 1.1: Intensify research, technology transfer, product development, and venture formation across a portfolio of cross-cutting technologies that sustain and support the Commonwealth's global competitiveness in major market opportunities.
  - Objective 1.2: Improve the strategies and support activities that lead to growth in the innovation economy across all regions of the Commonwealth.
  - Objective 1.3: Increase interactions between and among research institutions, industry, and the public sector; promote interdisciplinary research; and create strategic alliances that are essential to addressing emerging global technology and market opportunities.
- Goal 2: Promote conditions which enable growth throughout the Massachusetts innovation economy.
  - Objective 2.1: Encourage the adoption of innovative business practices and technology to promote productivity and global competitiveness throughout the public and private sectors.
  - Objective 2.2: Ensure an adequate supply of workers with the knowledge and skills required by technology intensive industries.
  - Objective 2.3: Induce greater investment in infrastructure needed to support technology adoption and the growth of technology intensive sectors in all regions of the state.

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<sup>7</sup> MTC coined the term 'Massachusetts Innovation Economy' in 1997 to describe the wide variety of forces and actors that stimulate the development of new technology and renew innovation throughout the state's economy. As used in MTC's *Index of the Massachusetts Innovation Economy*, it refers to nine key industry clusters, including not only the high technology and biotechnology sectors, but also what today are technology-intensive traditional industries such as textiles and apparel. It also includes those industries that support, finance, and drive technological innovation in the economy – higher education, financial services, and innovation services. But innovation can be found in all types of activities, and must be nurtured in all the state's industries in order to produce new jobs and income. This 'innovation imperative' is why support of technological innovation is at the heart of the John Adams Innovation Institute and its mission.

- Goal 3: Provide accurate and reliable information, data and analysis to stakeholders in the Massachusetts innovation economy that promotes understanding and informs policy at the federal, state, and local level.
  - Objective 3.1: Develop timely assessment of key elements of the Massachusetts innovation economy that informs the actions of key stakeholders and policy makers.
  - Objective 3.2: Become an objective and relevant center for information profiling the Commonwealth's innovation economy.

While all programs undertaken by the Innovation Institute will be directed toward achieving the overall mission of the organization, they will vary with respect to the relative emphasis placed on different goals and objectives.

### **Operating principles**

In carrying out its mission, the Innovation Institute will be guided by the following principles:

- Collaboration. The Innovation Institute will strive to work effectively with stakeholders to establish common goals, reach consensus on needed actions, and cooperate on implementation.
- Independence. While the Innovation Institute will work cooperatively with stakeholders, it will strive to remain independent from the undue influence of any particular constituency.
- Coverage. The Innovation Institute will endeavor to ensure that benefits are widely shared among citizens throughout Massachusetts.
- Leverage. The Innovation Institute will strive to maximize funding from external sources in order to mobilize greater resources and ensure institutional commitments to agreed actions.
- Transparency. The Innovation Institute will provide clear and accurate information on its activities to stakeholders, including the rationale for specific decisions.
- Accountability. The Innovation Institute will monitor and evaluate its activities in a systematic manner to enable the MTC Board of Directors, Governing Board, the administration, State Legislature and other stakeholders to assess its performance.
- Sustainability. The Innovation Institute will seek to expand and diversify its funding base, including securing funds from the federal government, foundations and industry sponsors.

## Programs

The Innovation Institute has established three broad programs: grantmaking, development assistance, and research and analysis. Each of these programs is described below with a particular emphasis on grantmaking given the relative scale of proposed activities. While described separately, it is important to note that the three programs are interrelated.

### Grantmaking

#### *Grant Programs*

As noted above, MTC has been charged with the responsibility for managing two funds on behalf of the Commonwealth – the Innovation Institute Fund (Regional Fund) and the Research Center Matching Grant Fund. These funds will be used, in part, to provide grants to organizations to carry out activities designed to spur technology-based economic development in the Commonwealth. Appendix F provides detail on the allocation of grant awards budgeted for each of the funds through fiscal year 2009.

#### Regional Grants

The Innovation Institute Fund (Regional Fund) will be used to support regional technology-based economic development initiatives across the Commonwealth. Grants will be provided to public and not-for-profit organizations to enable them to undertake initiatives that are intended to create and maintain a favorable environment for the establishment, attraction, retention and expansion of technology-intensive businesses. It is anticipated that these funds will enable grant recipients to undertake a wide range of initiatives including cluster development services and assistance, technology development programs, regional improvements in telecommunications infrastructure and services, and investments to improve institutions that support the innovation economy. Such initiatives will be targeted to accelerating the growth of companies in technology clusters.

In all cases, successful applicants will need to demonstrate broad-based support for the proposed project and an ability to forge effective alliances among relevant stakeholders, including local government, community-based organizations, academia, industry and labor. They will also need to define expected outcomes with respect to technology-based economic development and specify the set of indicators that will be used to measure the effectiveness of regional initiatives.<sup>8</sup> Efforts will be made by Innovation Institute staff to help ensure that grant recipients capitalize on other potential sources of financial support.

The Innovation Institute Fund (Regional Fund) will be used to support three funding programs:<sup>9</sup>

- **Regional Priority Grants.** This grant program is intended to support small-scale, technology-based economic development initiatives that are considered high priority by

<sup>8</sup> The legislation stipulates that grantees that “fail to meet these accountability measures shall be barred from pursuing any additional grants under this section for 5 years from the effective date of the grant.”

<sup>9</sup> The planned allocation of funds to the different funding programs is presented in Section 7.

stakeholders in respective regions. Grants ranging from \$25,000 to \$150,000 will be provided to eligible organizations – municipal governments, economic development agencies, industry associations, educational institutions, and other not-for-profit organizations – to enable them to initiate specific projects.

Innovation Institute staff will undertake outreach efforts in conjunction with the Department of Economic Development, Regional Competitiveness Councils, and other economic development organizations. Eligible organizations will be invited to submit proposals in response to an open solicitation (expected in fall 2004). The Innovation Institute has allocated \$500,000 available for award through this solicitation to each of seven regions across the Commonwealth.

To meet both legislative requirements and respect current regional economic development practice, the Innovation Institute has adopted the regional classification of communities utilized by UMASS “Benchmarks”, a quarterly journal of the Massachusetts economy. This classification aligns well with the distribution formula<sup>10</sup> in the Innovation Institute’s enabling statute and captures every municipality in one of seven regions. The regions are: Berkshires, Pioneer Valley, Cape & the Islands, Southeast, Central, Northeast and Greater Boston (see Appendix C)

In all cases, grant recipients will need to demonstrate widespread support for proposed projects within the region as evidenced by an endorsement by the relevant Regional Competitiveness Council or other appropriate representative body, and evidence of the non-state resources to be leveraged by the Innovation Institute investment.

- **Regional Project Grants.** This grant program will provide up to \$500,000 to support particular technology-based economic development initiatives in different regions. MTC has established the following guidelines for this program:
  - Grant recipients must demonstrate how the proposed project will accelerate the growth of companies in technology clusters and contribute to economic growth in the region;
  - Grant recipients will need to have the endorsement of the relevant Regional Competitiveness Council or other appropriate representative body;
  - Grant recipients must demonstrate sound leadership and project management capabilities as well as a willingness to be accountable for results;
  - Grant recipients must demonstrate a commitment to the project through cost-sharing and other obligations;
  - Grant recipients must demonstrate how the project will become financially sustainable once MTC funding ends.

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<sup>10</sup> The legislation mandates no less than \$500,000 shall be distributed over a 3 year period to each of the 5 service delivery areas in the Commonwealth as follows: Central Area (Northern Worcester Service Delivery Area and the Southern Worcester Service Delivery Area as specified in 20 CFR 661.280), Greater Boston Area (Boston Service Delivery Area, the Metropolitan North Service Delivery Area and the Metropolitan South/West Service Delivery Area as specified in 20 CFR section 661.280), North East Area (Lower Merrimack Valley Service Delivery Area, the Northern Middlesex Service Delivery Area and the Southern Essex Service Delivery Area as specified in 20 CFR 661.280), South East Area (Bristol Service Delivery Area, the Brockton Service Delivery Area, the Cape and Islands Service Delivery Area, the New Bedford Service Delivery Area and the South Coastal Service Delivery Area as specified in 20 CFR 661.280) and Western Area (Berkshire Service Delivery Area, Franklin/Hampshire Service Delivery Area and Hampden Service Delivery Area as specified in 20 CFR 661.280.)

- **Regional Infrastructure Grants.** This grant program will provide grants up to \$2 million for technology infrastructure projects in response to a statewide competition. A proposal must be deemed essential to improving the prospects for economic prosperity throughout a given region with respect to technology intensive sectors. Examples of projects include the deployment of communications technologies, workforce training facilities, and shared use facilities which are unique to a specific technology sector. It is expected that MTC will issue a solicitation for Regional Infrastructure Grants sometime in FY2006.

### **Research Center Grants**

Research Center Matching Grant Fund will be used to support efforts to enable university-based research centers to devote greater resources to developing and transferring technology to industry in the Commonwealth. With this objective in mind, the Innovation Institute plans to establish four grant programs:<sup>11</sup>

- **Awards for Centers of Excellence.** The economic stimulus legislation mandates that a portion of the Matching Grant Fund be used to establish Centers of Excellence at research institutions in the Commonwealth to foster scientific discovery, technological innovation and learning in targeted emerging technologies. The legislation calls for funding three Centers of Excellence during the first year of operation, focusing on medical devices, biotechnology and nanotechnology. In an effort to ensure geographical representation, it stipulates that one of these Centers is to be located in southwestern Massachusetts and another in northeastern Massachusetts. The location of the third center was not designated in the legislation.

Based on a review of the legislation and the experience of similar initiatives elsewhere, MTC has established the following guidelines for the Center of Excellence grant program:

- Centers must be able to demonstrate strong interest by companies located in Massachusetts, address significant market opportunities, and be responsive to regional and statewide economic development priorities;
- Centers must demonstrate excellence in relevant scientific and/or engineering disciplines;
- Centers must carry out an integrated set of research, technical assistance, and educational programs with strong emphasis placed on meeting the needs of industry in Massachusetts;
- Centers must have a specific program for transferring or commercializing technology;
- Centers must be led by a degree-granting, research institution and include or collaborate with other institutions of higher education in the Commonwealth or not-for-profit research institutions affiliated with a degree-granting research institution;
- Participating institutions must demonstrate a commitment to the Center through financial and other institutional obligations;

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<sup>11</sup> The planned allocation of funds to the different funding programs is presented in Section 7.

- Centers must establish an industry-led Advisory Board to help plan and oversee activities;
- The Center must have full-time staff responsible for setting the strategic direction for the organization and managing day-to-day operations;
- Centers must establish a critical mass of activities as reflected in operating budgets that exceed \$2 million per year and demonstrate potential to secure funding from other sources; and
- Centers must secure other necessary funding according to specified match requirements and demonstrate how financial sustainability will be ensured over the long term.<sup>12</sup>

It is envisioned that MTC will commit roughly \$3 million to \$5 million to each Center over a five-year period.<sup>13</sup> As stipulated in the legislation, any funds allocated to a Center must be matched in the first year with at least one dollar from the federal government or private sector, increasing to a minimum of two dollars in subsequent years. Two-thirds of the matching funds may be in-kind.

Innovation Institute staff have determined that the Nanomanufacturing Center of Excellence at the University of Massachusetts Lowell is the only institution in northeastern Massachusetts that meets the criteria included in the legislation with respect to designated location and technologies.<sup>14</sup> Innovation Institute staff will work directly with this institution over the coming months to establish a Center of Excellence. Following discussions with respect to planned activities and expected outcomes, the institution will be required to prepare and submit a proposal detailing plans for the Center.

It is anticipated that funding for the second and third Centers of Excellence will be awarded through a competitive solicitation based on the experience gained from working with this initial project.

- **Matching Grants for Research Centers.** The purpose of this funding program is to increase the likelihood that university-based research centers in Massachusetts will secure funding from federal agencies and to increase the economic benefits derived from such centers by investing in activities that will facilitate the transfer of knowledge and technology to companies in the Commonwealth. The program may also support the establishment of centers that receive major funding from foundations, non-profit research institutions, or other similar sources.

Based on a review of the legislation and the experience of similar initiatives elsewhere, MTC has established the following guidelines for the Matching Grant program:

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<sup>12</sup> As stipulated in the legislation, any funds allocated to Centers must be matched in the first year with at least one dollar from the federal government or private sector, increasing to a minimum of two dollars in subsequent years. Two-thirds of the matched funds may be in-kind

<sup>13</sup> Subject to availability of funds. Currently, funding is only available to establish two centers.

<sup>14</sup> University of Massachusetts Lowell is a partner – along with Northeastern University and the University of New Hampshire – in the proposed New England Nanomanufacturing Center for Enabling Tools (NENCET). These universities recently submitted a proposal to the National Science Foundation for funding under the NSEC program. Funding provided by MTC to support nanotechnology-related programs at UMASS Lowell will also contribute to strengthening NENCET.

- Grant recipients must demonstrate how research and related activities will contribute to meeting the needs of Massachusetts industry and how new scientific knowledge or technological innovations will be transferred to companies in the Commonwealth;
- Matching funds will be committed only to institutions that are competing for “center” awards under national competitions conducted through open solicitations;
- Participating institutions must demonstrate a commitment to the Center through cost-sharing and other obligations;
- Collaboration among multiple universities and/or not-for-profit research institutes in the Commonwealth will be strongly encouraged to strengthen institutional capacities and increase prospects for securing external funding; and
- As currently envisioned, funding will be used principally to support technology-based economic development related activities; funding would not ordinarily be provided for facilities, equipment or other capital expenditures.

Innovation Institute funding will be provided on a competitive basis through formal solicitations with grants awarded on a multi-year basis consistent with agreements entered into with the federal funding agency.

The Matching Grant Program will provide up to 20 percent of the federal or institutional funding received by the Center to support technology-based economic development activities that benefit Massachusetts. It is anticipated that grants will range from roughly \$50,000 to a maximum of \$2 million over the life of the federal grant.

- **Research Center Development Grants.** These awards will be used to support the initial activities of universities to plan and establish a new research center. These funds could be used, for example, to pay expenses associated with building strategic alliances with local industry partners or government agencies. In addition to strengthening proposals to the federal government, planning grants may provide the foundation for Centers of Excellence Awards or Research Center Matching Grants.

Specific guidelines are in the process of being developed, but MTC anticipates that funding will be less than \$100,000 with a dollar-for-dollar cash match requirement. MTC expects that the number of planning grants that any one institution can receive during a specified period will be limited.

- **Principal Investigator-Industry Awards.** The Principal Investigator-Industry Award will provide matching grants in instances where a faculty member can secure equivalent funding from a private company for an applied research project. The Innovation Institute anticipates that any single award will not exceed \$20,000 with a special emphasis on nurturing relationships between small firms and university faculty. This award program will be defined and implemented after the other three award programs have been made fully operational. No funding has been allocated to this award category at this time.

### **Other funding programs**

The Innovation Institute will develop other funding programs in response to legislative mandates and as resources permit. For example, the organization plans on establishing a

new program to support wireless technology in schools across the Commonwealth. (See below.)

### **Grantmaking process**

All grant programs will entail the following steps:

- **Solicitation development.** Innovation Institute staff will develop and issue solicitations for proposals under each grant program. Each solicitation will describe the purpose of the grant program, eligibility rules and selection criteria, proposal content and format, and schedule for proposal submission and review. The Innovation Institute will announce new solicitations in publications, news releases, statewide mailings, and on the MTC website. Some solicitations will remain open until a specified date or until all funds allocated to a particular grant program have been committed or reallocated.
- **Proposal submission.** Applicants will be required to submit a proposal for funding in response to solicitations issued by the Innovation Institute. (The Innovation Institute will not entertain unsolicited proposals.) To be considered for funding, proposals must be prepared in accordance with guidelines established by the Innovation Institute and submitted under the signature of an individual authorized to legally obligate the submitting institution (e.g., the Vice President of Sponsored Research or equivalent position at an academic research institution).
- **Review and approval.** In general, awards under funding programs will be made on a competitive basis.<sup>15</sup> Projects requesting funding in excess of \$150,000 will be based on a peer review process that employs explicit eligibility rules and selection criteria. Reviewers will be asked to rate proposals based on the selection criteria, e.g., relevance of proposed research/activities to existing or emerging clusters in Massachusetts, interaction with Massachusetts industry, likely outcomes in terms of regional or statewide economic impacts, adequacy of management plan, financial leverage, and overall budget. Peer reviewers will be asked to recommend whether funding should be provided and specify any conditions that should be imposed on grants, if warranted.

Final approval for funding decisions will rest solely with the MTC Board of Directors. At its discretion, the Board may elect to delegate authority to the Innovation Institute Governing Board and the MTC Executive Director.<sup>16</sup> In this regard, the MTC Board has adopted a grant approval policy that reserves for Board decision making all proposed grants greater than \$500,000 as well as unsolicited grants greater than \$200,000. Grants involving controversial or otherwise sensitive matters as determined by management may be brought back to the MTC Board of Directors for consideration regardless of the amount requested.<sup>17</sup> The Governing Board will provide recommendations on funding decisions to the BOD. For all remaining grants, the Board has delegated authority to the Governing Board to approve or decline proposed grants in amounts up to \$500,000. In addition, the Executive Director is authorized to decide on proposed grants of up to \$100,000.

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<sup>15</sup> The only exception will be the initial Center of Excellence designated by the Legislature.

<sup>16</sup> The governance of the Institute is discussed in Section 5.

<sup>17</sup> In this regard, it is the obligation of management to bring potentially controversial projects to the attention of the BOD.

Once approval is given by the relevant authority, a grant agreement is prepared by MTC corporate staff and sent to the grantee for signature. When MTC receives a fully executed copy of this agreement, it considers the grant obligated and active. At that point, work under the grant can commence and payments can be made to the grantee as delineated in the agreement. (Grant administration will be handled by MTC corporate offices.)

The economic stimulus legislation requires the Innovation Institute to inform various parties of funding decisions.<sup>18</sup> These requirements will be strictly met.

- **Post award monitoring.** Innovation Institute staff will monitor the performance of grant recipients. In this regard, as specified in the grant agreement, grant recipients will be required to submit reports to the Innovation Institute that detail activities, expenditures and results. Innovation Institute staff will also meet periodically with grant recipients to discuss projects and determine how best to address issues that arise during the course of work. Awards will be terminated in the event of non-performance.

### **Development assistance**

The Innovation Institute will provide various forms of non-financial assistance on projects that are aligned with its mission and designed to accomplish stated goals and objectives. In this regard, the Innovation Institute will focus its attention on two types of collaborative activity:

- **Development of technology-intensive industries.** The first type revolves around efforts to promote the development of technology-intensive industries (or clusters) in the Commonwealth. The role that the organization played in establishing MassMEDIC and the current effort to bring together companies involved in nanotechnology are examples of this type of work.
- **Increased deployment of appropriate technology.** The second type involves efforts to deploy technology to address specific social and economic issues in the Commonwealth. Current efforts in this arena all focus on the application of information technology, e.g., Berkshire Connect, MassConnect, MassBroadband, Wireless Learning, and the Healthcare Technologies project.

In both types of collaborations, the Innovation Institute serves principally as a catalyst and facilitator for discussions among interested parties -- private companies, not-for-profit organizations, academic institutions and government agencies. In this regard, it works with representatives of relevant constituencies to define problems, identify potential solutions, and take necessary actions. This may entail the use of consultants or other external experts.

The Innovation Institute activities with respect to particular collaborations will be carried out on a project basis with a defined objective, scope, work plan and budget. It is anticipated that the Innovation Institute will focus its efforts over the next three years on the following projects:

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<sup>18</sup> The legislation requires that written notice shall be given to the house and senate committees on ways and means at least 10 business days prior to any disbursement of funds amounting to \$250,000 or more from the Innovation Institute Fund. Similarly, it stipulates that no grant shall be awarded from the Innovation Institute Fund (Regional Fund) without MTC first having consulted with the appropriate regional competitiveness council or sub-regional competitiveness council established by the department of business and technology. The request for consultation shall be submitted not less than 15 business days prior to the execution of any grant award contract.

- **Healthcare Technologies.** Over the past year, Innovation Institute staff have been working with the New England Healthcare Institute to examine potential applications of various technologies in the healthcare sector. This work culminated in the publication of a report, *Advanced Technologies to Lower Healthcare Costs and Improve Quality*, which identified several readily available technologies that if implemented could save over \$2 billion per year. The Innovation Institute is now working on a strategy to accelerate the adoption of one of these technologies – Computerized Physician Order Entry (CPOE) systems – within hospitals across the Commonwealth. The project is guided by a working group that includes senior representatives of most of the critical players in the state healthcare system, including doctors, hospitals, insurers, and employer associations. The experience gained from this initial project will serve as a foundation for replicating the strategy for other technologies.
- **Wireless Learning Project.** The Innovation Institute will participate in a pilot project to evaluate the use of wireless laptops in classrooms being undertaken under the auspices of the Wireless Learning Steering Committee. The pilot project will be conducted in four Berkshire County middle schools. The purpose is to improve academic achievements, produce a technologically fluent workforce; and to provide the skills necessary for citizens to participate in the knowledge economy. The pilot will be modeled after a successful effort in Maine, where they have found the use of laptop computers in the classroom to be an effective learning tool for students. It will include the following components:
  - Teachers at the middle schools will receive professional development training with respect to incorporating the use of laptops in the curriculum;
  - Each student will receive a laptop for their own personal use. (This will begin with students in the sixth grade and expanded to other grades in subsequent years.)
  - A rigorous evaluation of the pilot project will be conducted to assess its implementation and resulting outcomes

Innovation Institute staff will provide information on the experience of other communities that have introduced wireless laptops into their classrooms to the Steering Committee. In addition, the Innovation Institute will assume responsibility for an external evaluation of the pilot project with the intention of shaping the potential statewide deployment of such an initiative.

It is anticipated that the pilot project will be funded through a combination of state support and contribution from participating schools and the private sector. Based on the success of this pilot, the project could be expanded throughout Massachusetts.

- **Nanotechnology Initiative.** The Innovation Institute is working with other parties to establish a nanotechnology leadership group to spearhead efforts to nurture the development of nanotechnology-related sector in the Commonwealth. This leadership group will be formed in close collaboration with senior executives of emerging nanotechnology firms, officials of research institutions, and representatives of relevant government agencies in the state. This Initiative has four major objectives: increase stakeholder awareness of the potential of nanotechnology, strengthen industry/university relationships, facilitate access to financing, and promote the growth of companies in Massachusetts.

In addition to these major projects, the Innovation Institute will continue to investigate additional areas in which it can play a useful role. In general major projects such as those indicated above will be undertaken with external funds provided by the State Legislature, government agencies and/or industry sponsors. However, MTC will also commit internal funds to selected projects, particularly those that are in the initial stages of development. Such funds will be used for preliminary studies and seeding collaborative activities.

The Innovation Institute Director and Manager of Development Assistance will be kept informed of potential projects in which the Innovation Institute might be involved. A project manager will be assigned to projects as soon as it is determined that Innovation Institute assistance is warranted. The Project Manager will be responsible for preparing a brief proposal specifying the objectives of the project, scope of work, work plan, level of effort, and budget (including external expertise if required). The proposal will be submitted to the relevant authority (MTC Board of Directors, Governing Board, or Executive Director and Innovation Institute Director) depending on the source and magnitude of resources required for the project.<sup>19</sup>

Projects will be monitored by relevant staff who will prepare periodic reports on the status of the project, progress toward meeting specified objectives, and issues that have emerged during the course of the work.

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<sup>19</sup> The policy for approving internal projects mirrors the one for external grants, i.e., the Board reserves decision making on all proposal requests in excess of \$500,000 as well as controversial projects regardless of the amount requested. The Governing Board has authority to approve or decline projects requesting up to \$500,000. The Executive Director and Institute Director together are authorized to decide on proposed projects less than \$100,000.

## Research and analysis

The Innovation Institute will carry out independent, nonpartisan studies on issues related to science, technology, competitiveness and economic development in the Commonwealth. The principal purpose of these studies is to provide objective information and practical recommendations to decision makers in industry, academia, and government in order to effect needed policy changes and other reforms. The results of research and analytical work will be summarized in publications written for diverse audiences and further disseminated through seminars, conferences and other activities as part of an integrated education program. (The Innovation Institute is in the process of developing a plan for the expansion of this unit.)

While plans are being developed, the Innovation Institute anticipates that it will need to build its capacity for research and analysis through the addition of one or two staff members (including a Manager of the Research and Analysis Unit) and the development of a network of potential collaborators at universities across the Commonwealth. In addition to contracting with faculty for specific studies, the Innovation Institute will consider the establishment of a visiting fellows program for scholars who wish to spend time at the Innovation Institute and a summer intern program for graduate students.

The Innovation Institute will continue to produce two publications on an annual basis: *The Index of the Massachusetts Innovation Economy* and *The R&D Funding Scorecard: Federal Investments and the Massachusetts Innovation Economy*. In addition, it will aim to undertake one or two other studies in the upcoming year and expand activities in later years as resources allow. All studies undertaken by the Innovation Institute will be closely linked to its grantmaking and development assistance programs. The specific research agenda will be set through ongoing discussions with MTC Board of Directors, the Governing Board, Legislature, administration and other stakeholders.

The Innovation Institute will take steps to ensure that findings are readily available not only to state and local officials, but also to decision-makers in the private sectors. It will produce various types of publications including reports, research briefs, fact sheets, and press releases. All publications will be made available on the MTC website and mailed to members of the target audience. Results will also be disseminated through conferences, seminars, briefings, and other outreach efforts.

Before embarking on a new study, the Project Manager assigned to the task will be responsible for preparing a brief proposal specifying the purposes of the study, scope of work, work plan (including plans for dissemination), level of effort, and budget. The proposal will be submitted to the relevant authority (MTC Board of Directors, Governing Board, or Executive Director and Innovation Institute Director) depending on the magnitude of resources required for the project.<sup>20</sup>

For major studies (i.e., budget greater than \$50,000), the staff will organize a Blue Ribbon Review Committee that will participate in the development of the proposal, oversee the study, and provide feedback on reports. Members of Review Committees will be drawn from industry, academia and government with expertise in relevant fields.

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<sup>20</sup> The policy for approving such studies is similar to other activities undertaken by the Institute as described above.

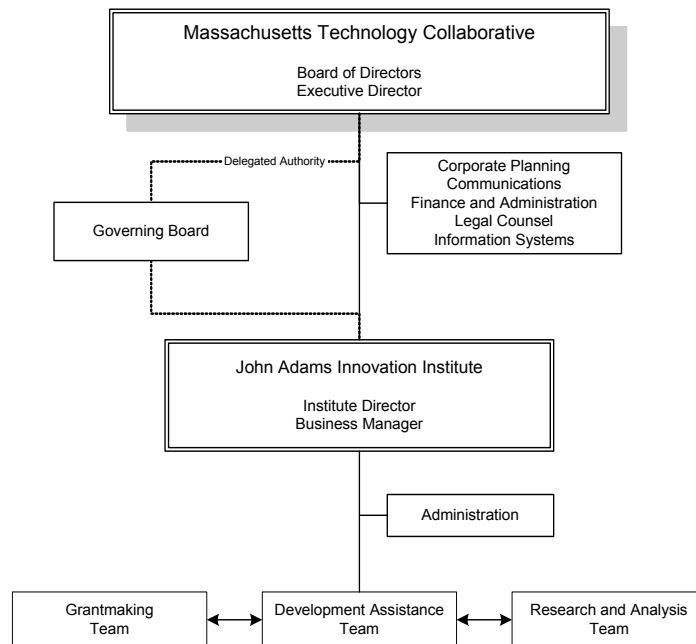
In general, major studies will be undertaken with external funds provided by the State Legislature, government agencies and/or industry sponsors. However, MTC will also commit internal funds to build the capacity of the Research and Analysis Unit and support selected projects.

## Organization

### Organizational structure

As illustrated in Figure 5, the John Adams Innovation Institute is an operating division of the Massachusetts Technology Collaborative (MTC). The division will be organized around three teams – Grantmaking, Development Assistance, Research and Analysis – in keeping with its principal programmatic activities. These teams will work in close cooperation with each other to ensure that activities are tightly integrated.

**Figure 5. Organizational Structure**



### Governance

The MTC Board of Directors has statutory authority for the corporation and its operating divisions. In this capacity, the Board has the fiduciary responsibility for safeguarding funds that have been allocated to the Innovation Institute and ensuring that these monies are used to further the goals articulated in relevant legislation. The Board of Directors consists of senior managers from industry, universities, and government.<sup>21</sup> The diverse membership helps to ensure that perspectives of difference constituencies are represented.

As delineated in the economic stimulus legislation, the MTC Board of Directors will appoint a “Governing Board” to oversee the two funds established by the Legislature. In addition to three ex-officio members – Executive Director of MTC, the Director of the Department of Business and Technology, and the President of the Massachusetts Development Finance Agency – members of the Governing Board will include a president of a state or community college, head of an emerging technology company, a representative of a regional planning agency, and a

<sup>21</sup> Members of the MTC Board of Directors are listed in Appendix D.

technology transfer officer or individual qualified in technology commercialization from a university in the Commonwealth. The Governing Board will exercise such authority as may be delegated by the MTC Board and consistent with the enabling legislation.<sup>22</sup>

The Governing Board will provide direct oversight of Innovation Institute activities, acting in a capacity similar to a formal, standing committee of the MTC Board of Directors. According to its by-laws, the Governing Board will be responsible for a wide range of oversight activities, to the extent such authority is delegated by the MTC Board of Directors, including review of annual plans and budgets and approval of certain investments concerning the Innovation Institute Fund (Regional Fund) and the Research Center Matching Fund. The Governing Board will serve as an advisory committee on all other activities underway within the division.

The MTC Board of Directors will look toward this Governing Board to emerge as the Commonwealth's authority on how best to pursue technology-based economic development in Massachusetts. Innovation Institute staff will support Governing Board members to achieve new understandings of the challenges and opportunities associated with strategic investing in the Commonwealth's innovation economy. The Governing Board will advise policymakers on ways to promote growth in the Commonwealth's Innovation economy.

### **Management and staffing**

MTC has appointed Patrick Larkin as the Director of the Innovation Institute. The Director reports to the Executive Director of MTC and has primary responsibility for setting the overall direction for the Innovation Institute, establishing policies and procedures, overseeing operations, and representing the Innovation Institute to the State Legislature, Administration, and other external stakeholders.

Day-to-day responsibility for the operations of the Innovation Institute will reside with a Business Manager. The Business Manager will report to the Director of the Innovation Institute and will serve as the primary point of contact with respect to financial and administrative services provided by the corporation. In this capacity, the Business Manager will be responsible for ensuring that systems and procedures are in place and used to track grant activities and projects undertaken by Innovation Institute staff. At the discretion of the Director, the Business Manager will attend all meetings of the Governing Board and provide the Governing Board with any necessary staff support.

Each of the three teams within the Innovation Institute will be headed by a Team Manager. The Grantmaking Team will have responsibility for the university grant program and regional grant program. An individual will be assigned to manage each funding program with responsibility for fielding inquiries from potential applicants, reviewing grant applications, working with peer review committees, assisting in preparing contracts, monitoring progress, assessing outcomes, and undertaking special assignments related to grantmaking programs. It is anticipated that these positions will each require 0.5 staff on a full-time equivalent basis (FTE).

Staff will be assigned to manage specific projects carried out under the other two teams. The current plan calls for 3.0 (FTE) project managers for the Development Assistance Team and 0.5

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<sup>22</sup> By-laws for the Governing Board are included in Appendix E.

(FTE) project managers for the Research and Analysis Team. Additional staff will be retained and/or reassigned from other duties within MTC to specific jobs as required.

The Innovation Institute will employ a small core staff and draw on external experts as required. All told, the Innovation Institute will employ 9.5 people on an FTE-basis as shown in Table 2. It is important to note that certain individuals will be responsible for multiple jobs. For example, B. Kispert and B. Ennen will each manage one the grant programs as part of the Grantmaking Team and will also serve as project managers on specific projects undertaken by the Development Assistance Team. Staffing levels and positions will be periodically reviewed and refined based on actual operating experience.

**Table 4. Staffing Plan**

<b>Position <sup>a</sup></b>	<b>Individual</b>	<b>FTE</b>
Director	P. Larkin	0.75
Business Manager	K. Paulson	0.50
Manager of Grantmaking Team	P. Larkin	0.25
Manager of University Grants	B. Kispert	0.50
Manager of Regional Grants	B. Ennen	0.50
Manager of Development Assistance Team	TBD	0.50
Project Managers	B. Kispert, B. Ennen, T. Hubbard and J. Rocha	3.00
Manager of Research and Analysis Team	TBD	0.50
Project Managers	TBD	0.50
Administration and support staff		2.00
<b>Total Innovation Institute Staff (FTE)</b>		<b>9.50</b>

Note: Position titles are not the same as titles used at MTC for pay grades.

Finally, as described in more detail below, the Innovation Institute will draw on capabilities and resources resident within MTC corporate offices, including corporate planning, communications, finance and administration, legal counsel, and information systems.

## **Operations**

The manner in which specific programs will be carried has already been discussed in previous sections of the plan. This section highlights major elements of the overall operations of the Innovation Institute, focusing on planning, fundraising, monitoring and evaluation, and finance and administration.

### **Planning**

Innovation Institute staff will prepare five-year strategic plans and annual operating plans in conjunction with MTC corporate managers. The annual plans will include a detailed budget by program and funding source, including separate budgets for the Innovation Institute Fund (Regional Fund) and Research Center Matching Fund. Annual plans will be submitted to the Board for approval.

As part of the planning process, staff will engage in a continual process of assessing whether existing programs are sufficient to accomplish stated objectives. This will be based on the staff's knowledge of the innovation infrastructure and technology-based economic development in the Commonwealth as well as insights gained from the Innovation Institute's monitoring and evaluation (M&E) system as described below. Existing programs may be expanded, modified, or eliminated based on this assessment. In addition, new programs may be developed to address identified gaps.

### **Communications**

Innovation Institute staff will work with MTC corporate staff to develop and implement a communications strategy designed to ensure that various stakeholders in industry, government, academia, not-for-profits and the general public understand the issues facing the Commonwealth and the role of the Innovation Institute in technology-based economic development. The strategy will employ the internet, direct mailings, article placements, conferences, and personal briefings.

The Innovation Institute will work with the Communications Department to develop communications strategies to generate leads for the agency's grant funding initiatives and other products. We will develop a web site that ensures taxpayers and potential customers have easy access to the latest information, solicitations and applications from the Institute's programs. The Communications group will work with the Research & Analysis team to produce high quality reports using in-house expertise to minimize printing and other costs. We will develop communications tools including broadcast emails, newsletters and brochures to enhance communication with stakeholders. Regular electronic updates will be sent to the Governing Board and MTC's Board of Directors on the activity of the Innovation Institute.

## **Fund raising**

The Innovation Institute needs to be financially sustainable. To this end, the organization will work closely with the administration and State Legislators to ensure that resources needed for various programs are made available.

The Innovation Institute will pursue funding from other sources, including the federal government, foundations, and private industry. Innovation Institute staff will work with MTC corporate staff to identify potential funding opportunities, prepare proposals, and negotiate awards.

## **Monitoring and evaluation**

The Innovation Institute will establish a comprehensive system for assessing its performance. The purpose of the monitoring and evaluation (M&E) system is to provide accurate and credible information to the Legislature, Board of Directors, MTC management and other stakeholders to enable them to make more informed decisions regarding the Institute. More specifically, the M&E system is designed to provide an objective basis for assessing the performance of the Institute, afford accountability with respect to the achievement of stated objectives, and provide a solid foundation for modifying strategies and programs in light of actual experience. To the extent appropriate, measurable indicators will be developed for different aspects of performance, including throughput, resource utilization, operating efficiency, and impacts. With respect to the latter, the organization will assess the degree to which its activities met the goals and objectives delineated in Section 3.

In establishing its M&E system, the Innovation Institute recognizes that meeting its goals and objectives is going to require the collaborative efforts of many organizations and establishing one-to-one causal relationships between Institute support and economic outcomes may be either inappropriate or impossible to determine. In order to capture and learn from the role the Innovation Institute plays in such instances, the M&E system will rely heavily on case studies that document the impact of programs, policies, analyses, collaborations, and the use of the organization's convening power on economic outcomes.

The M&E system for the Innovation Institute will focus on three levels of assessment: institutional, programmatic, and project.

- At the institutional level, the Innovation Institute has established three goals:
  - Goal 1: Enhance institutional and industry competitiveness throughout the Commonwealth.
  - Goal 2: Promote conditions which enable growth throughout the Massachusetts innovation economy.
  - Goal 3: Provide accurate and reliable information, data and analysis to stakeholders in the Massachusetts innovation economy that promotes understanding and informs policy at the federal, state, and local level.

In establishing these goals, the Innovation Institute recognized that at any point in time its activities would only be addressing finite subsets of these goals through its programs and the efforts of its staff. However, the value that the Innovation Institute provides is based on

its ability to identify key issues and opportunities that impact the performance of the state's innovation economy, to propose policies and programs that would enhance that performance, and to facilitate or support public/private partnerships that promote economic growth. In order to assess the performance of the Innovation Institute in this context, the M&E system will be based on trends and benchmarking data that reflect the various goals and objectives of the Innovation Institute, and will identify the extent to which the Innovation Institute is acting as a proponent for change in areas which reflect the Commonwealth's economic priorities in the innovation economy. The Innovation Institute will refine and expand the annual *Index of the Massachusetts Economy* to become a primary element of its M&E system, as well as a tool to inform policy makers and the public at large.

- At the programmatic level, success is not simply the sum of the economic output of each project supported financially through the program. At this level, the objective is typically to inform and presumably modify behavior in ways that lead to greater economic growth than would otherwise have occurred. Therefore, success, at the programmatic level, must be defined in terms of significant changes in relevant economic output measures at the cluster, regional or statewide level. In the context of the research center matching fund, these metrics should address whether the overall program is having a positive impact on the flow of federal (and industrial) R&D dollars to Massachusetts universities, colleges, and research institutions; whether we are seeing more spinouts into the local economy; etc. In the context of the regional fund, these metrics should address the extent to which what we refer to as key innovation clusters are becoming a bigger factor in the regional economy. Data gathered through the *Index of the Massachusetts Innovation Economy* and other publications in the *Innovation Outlook* series will be used for benchmarking and to assess trends at the state-wide and regional level.
- At the project level, specific metrics for each project will be developed in collaboration with grantees as a prerequisite for award. These metrics will include those specified in the enabling legislation (dollars leveraged, jobs created, etc.), as well as those which will enable the Innovation Institute to determine the success of each project.

Team managers will be responsible for monitoring programs on an ongoing basis as part of their basic duties. In addition, the organization will undertake more comprehensive, independent evaluations of the Innovation Institute on a periodic basis. Responsibility for these periodic evaluations rests principally with MTC.

As required in the economic stimulus legislation, a quarterly report will be submitted to the House and Senate Committees on Ways and means, the House and Senate Committees on Science and Technology, and the Joint Committee on Commerce and Labor. In addition to presenting an annual budget for the Innovation Institute, the report will provide the following required information for each of the two funds:

- Cash inflows and outflows detailing the sources and uses of funds, including management and general expenses, along with a forecast of future payments based on current binding obligations.

- Detailed description of grant activities during the period, including the name, type and geographical location of grant recipients; the amount of funding provided, and the purposes of such funding.
- The amounts of non-state funding leveraged as a result of the funding provided by MTC.
- Projections for the nature and magnitude of economic development outcomes that may be created in the Commonwealth as a result of the various forms of assistance disbursed from the fund.

### **Finance and administration**

Principal finance and administrative functions related to the Innovation Institute will be performed by corporate staff of MTC, including the development and maintenance of systems and controls governing all financial operations. As part of this function, MTC corporate staff will also be responsible for managing cash flow as well as all treasury functions.

MTC corporate staff will also be responsible for the development and maintenance of all information systems, including computers, application software, email, and websites as well as electronic databases and reporting systems.

The Innovation Institute will rely on MTC in-house counsel for all legal matters related to grants, contracts and compliance with relevant laws and regulations. MTC counsel may seek assistance from outside attorneys to handle extraordinary cases or cover peak loads.

## Financial plan

### Overview

The Innovation Institute has established an annual budget that accounts for expenses according to the following *functional* classifications:

- **Direct program activities.** This classification includes expenses incurred in carrying out specific programs. It is divided into two sub-classifications:
  - **Grants.** This consists of cash awards to outside parties, including colleges and universities, not-for-profit organizations, and local development agencies under the various grant programs established by the Innovation Institute.
  - **Program services.** This includes all activities required for grantmaking (e.g., solicitation development, proposal review, project monitoring, etc.), development assistance, and research and analysis. To the extent that corporate staff spends time directly involved in program services, the relevant portion of their salaries will be assigned to that function.
- **Management and general activities.** This includes management activities related to planning and operating the Innovation Institute as well as associated legal services, accounting, auditing, and administrative activities. Board, committee and staff meetings will be treated as management and general activities unless held in connection with specific program services. A share of corporate expenses (such as salaries of senior corporate staff, facilities, and depreciation) that have not been assigned directly to the Innovation Institute will be allocated to this classification in proportion to the Innovation Institute's share of total MTC payroll.

Staff salaries, consultant and legal fees, travel, supplies and other expense items will be tracked and assigned to the appropriate functional classification *and* funding source.

### Pro Forma Financial Statements

#### *Consolidated*

Table 5 contains a consolidated, five-year *pro forma* income statement for the Innovation Institute as a whole. The Innovation Institute will rely on multiple sources of funding, including appropriations from the State Legislature, grants obtained from federal agencies and other parties, sponsorships and fees, MTC line item in the State budget, and contributions from the MTC corporate fund. The Innovation Institute projects total revenues of approximately \$46 million during the 5 ½ year period from 2004 through 2009. At this point, the bulk of the funding for the Innovation Institute is derived from monies provided through the economic stimulus legislation. As noted above, the legislation established two funds – Innovation Institute Fund (Regional Fund; \$15 million) and the Research Center Matching Fund (\$20 million). Other significant sources of funding include annual state appropriations and investment earnings. Each fund provided by the Legislature will be held separate and apart from other funds made available to the Innovation Institute and will be used solely for the purposes articulated in the relevant legislation.

The Innovation Institute expects to spend roughly \$38 million on programmatic activities over the next five years, including grants of \$30 million to universities, not-for-profit organization and other third parties.

**Table 5. Pro Forma Financial Statement for John Adams Innovation Institute**

	<b>FY04 Actual</b>	<b>FY05 Budget</b>	<b>FY06 Projected</b>	<b>FY07 Projected</b>	<b>FY08 Projected</b>	<b>FY09 Projected</b>	<b>Total</b>
<b>Beginning Fund Balance</b>	0	34,250,132	33,348,621	27,818,202	19,933,017	11,105,963	0
<b>Revenue</b>	35,340,435	4,876,615	1,584,124	1,544,637	1,402,235	1,195,261	45,943,307
<u>Programmatic Activities</u>							
Grant Expenditures	8,726	3,760,000	4,422,208	7,144,815	8,187,655	6,785,990	30,309,393
Program Services	<u>996,365</u>	<u>1,695,975</u>	<u>1,751,548</u>	<u>1,425,113</u>	<u>1,144,722</u>	<u>965,851</u>	<u>7,979,573</u>
Total Programmatic Activities	1,005,091	5,455,975	6,173,755	8,569,928	9,332,377	7,751,841	38,288,967
Management & General Activities	793,332	1,330,550	1,331,967	1,235,231	1,057,945	907,412	6,656,437
<b>Total Activities</b>	<u>1,798,423</u>	<u>6,786,525</u>	<u>7,505,722</u>	<u>9,805,159</u>	<u>10,390,322</u>	<u>8,659,252</u>	<u>44,945,404</u>
MTC Contributions	708,120	1,008,398	391,180	375,337	161,033	148,343	2,792,412
<b>Ending Fund Balance</b>	34,250,132	33,348,621	27,818,202	19,933,017	11,105,963	3,790,315	3,790,315
<i>Grant Awards</i>	0	9,505,000	12,866,652	10,570,000	900,000	0	33,841,652
<i>Ending Unawarded Fund Balance</i>	34,258,858	27,612,347	13,637,484	2,327,113	787,715	258,056	516,113

### Individual funds

In addition to being used for grants to third parties, monies held in the two funds established by the Legislature will be used for relevant program services and associated management and general expenses. The initial budget for the Research Center Matching Grant and Innovation Institute (Regional) Funds calls for 80 percent of the funds to be awarded as grants, 11 percent to be used to cover other programmatic activities, and 9 percent to defray management and general expenses associated with the two funds. Details are provided in Tables 6 and 7.

**Table 6. Pro Forma for Research Center Matching Grant Fund**

	<b>Inception Through FY05 <u>Budget</u></b>	<b>FY06 <u>Projected</u></b>	<b>FY07 <u>Projected</u></b>	<b>FY08 <u>Projected</u></b>	<b>FY09 <u>Projected</u></b>	<b><u>Total</u></b>
Beginning Fund Balance	0	18,686,003	16,283,065	11,902,591	6,389,094	0
Revenue	20,425,759	529,461	492,522	390,064	227,745	22,065,552
<u>Programmatic Activities</u>						
Grant Expenditures	751,667	2,033,333	4,063,333	5,233,333	4,323,333	16,405,000
Program Services	<u>564,618</u>	<u>520,477</u>	<u>455,857</u>	<u>365,978</u>	<u>301,472</u>	<u>2,208,401</u>
Total Programmatic Activities	1,316,284	2,553,810	4,519,190	5,599,312	4,624,805	18,613,401
Management & General Activities	423,471	378,590	353,806	304,249	236,750	1,696,866
Total Activities	<u>1,739,756</u>	<u>2,932,399</u>	<u>4,872,996</u>	<u>5,903,561</u>	<u>4,861,555</u>	<u>20,310,268</u>
Ending Fund Balance	18,686,003	16,283,065	11,902,591	6,389,094	1,755,284	1,755,284
Programmatic Activities/Total Activities	76%	87%	93%	95%	95%	92%
<i>Grant Awards</i>	<i>5,130,000</i>	<i>8,300,000</i>	<i>4,570,000</i>	<i>0</i>	<i>0</i>	<i>18,000,000</i>
<i>Ending Unawarded Fund Balance</i>	<i>14,307,670</i>	<i>5,638,065</i>	<i>750,924</i>	<i>470,761</i>	<i>160,284</i>	<i>160,284</i>
<i>Program Activities/Total Activities (Based on Awards)</i>	<i>93%</i>	<i>96%</i>	<i>93%</i>	<i>55%</i>	<i>56%</i>	<i>92%</i>

*The Grant Awards are the total grant commitments made during a fiscal year, which in many cases will be for multi-year projects. The grant awards and unawarded fund balance data is tracked to show commitments made and remaining funds available for commitment.*

**Table 7. Pro Forma for Innovation Institute Fund (Regional Fund)**

	<b>Inception Through FY05 <u>Budget</u></b>	<b>FY06 <u>Projected</u></b>	<b>FY07 <u>Projected</u></b>	<b>FY08 <u>Projected</u></b>	<b>FY09 <u>Projected</u></b>	<b><u>Total</u></b>
<b>Beginning Fund Balance</b>	0	13,643,947	11,411,618	7,998,402	4,684,846	0
<b>Revenue</b>	15,293,737	385,204	341,434	252,171	157,515	16,430,060
<u>Programmatic Activities</u>						
Grant Expenditures	583,333	1,672,222	2,881,481	2,954,321	2,462,654	10,554,012
Program Services	<u>642,245</u>	<u>532,711</u>	<u>480,268</u>	<u>338,950</u>	<u>246,185</u>	<u>2,240,359</u>
Total Programmatic Activities	1,225,579	2,204,933	3,361,750	3,293,271	2,708,839	12,794,372
Management & General Activities	424,211	412,599	392,900	272,456	130,513	1,632,679
<b>Total Activities</b>	<u>1,649,790</u>	<u>2,617,532</u>	<u>3,754,650</u>	<u>3,565,727</u>	<u>2,839,352</u>	<u>14,427,051</u>
<b>Ending Fund Balance</b>	13,643,947	11,411,618	7,998,402	4,684,846	2,003,009	2,003,009
Programmatic Activities/Total Activities	74%	84%	90%	92%	95%	89%
<i>Grant Awards</i>	<i>1,950,000</i>	<i>3,850,000</i>	<i>5,800,000</i>	<i>900,000</i>	<i>0</i>	<i>12,500,000</i>
<i>Ending Unawarded Fund Balance</i>	<i>12,277,280</i>	<i>7,867,173</i>	<i>1,535,439</i>	<i>276,204</i>	<i>57,022</i>	<i>57,022</i>
<i>Program Activities/Total Activities (Based on Awards)</i>	<i>88%</i>	<i>94%</i>	<i>96%</i>	<i>94%</i>	<i>95%</i>	<i>94%</i>

*The Grant Awards are the total grant commitments made during a fiscal year, which in many cases will be for multi-year projects. The grant awards and unawarded fund balance data is tracked to show commitments made and remaining funds available for commitment.*

## Appendix A. Legislation

SECTION 18. Chapter 40J of the General Laws is hereby amended by inserting after section 6 thereof the following section:-

Section 6A. (a) The corporation shall establish an institute for regional innovation, technology and competitiveness, to be known as the John Adams Innovation Institute, and a fund to be known as the Innovation Institute Fund (Regional Fund), to be held by the corporation separate and apart from its other funds, to finance the activities of said institute. The executive director of the corporation shall appoint a qualified individual as director to manage the affairs of said institute. The corporation, on recommendation of the executive director, shall appoint not less than 7 qualified individuals to a governing board to assist the corporation in matters related to said institute and said fund and in matters related to the research center matching fund established in section 4F, including a president of a state or community college, head of an emerging technology company, a representative of a regional planning agency, and a technology transfer officer or individual qualified in technology commercialization from a university in the commonwealth. The executive director, the director of the office of business and technology, and the president of the Massachusetts development finance agency shall serve as ex-officio members of said governing board. Said board shall consult with the house and senate committees on science and technology and ways and means during the preparation of a detailed plan for the operation of said institute and the matching fund. Upon approval of such detailed plan by the board of directors of the corporation, said board shall delegate such authority to the governing board of the institute as it deems appropriate to implement such plan. The members of said governing board shall be deemed to be directors for purposes of the fourth paragraph of section 3. The purpose of the institute shall be to serve as an agent of the commonwealth to create and maintain a more favorable and responsive environment in the commonwealth for the development, growth, attraction and retention of technology-intensive and innovation-driven clusters of organizations, with a particular attention paid to promoting economic growth in discrete and underserved regions of the commonwealth by harnessing local support and involvement in such economic development activities and by improving the economic infrastructure for such clusters. In furtherance of these public purposes, the institute shall endeavor to identify regions of the commonwealth in which compelling opportunities to make strategic investments appear to be present and develop strategies therefore. The institute may also provide development support more generally to organizations in regions across the commonwealth to assist the formation and growth of emerging technology sectors in those regions and may provide support to departments, agencies, and quasi-public entities of the commonwealth for activities that are consistent with the purposes of the institute. The institute may work in collaboration with the Massachusetts technology collaborative, other quasi-public and not-for-profit agencies. Successful grants should incorporate regional involvement through alliances among municipalities, colleges, business and industry, community based organizations, non-profits and labor unions. Insofar as apt, in the determination of the board, the provisions of this chapter that apply to centers and to the center fund shall apply to said institute and to the innovation institute fund, respectively. Without limiting the generality of the foregoing, the corporation may apply moneys in said fund to start-up expenses and project costs of said institute and related activities, grants to nonprofit or other organizations to develop proposals for

regional economic growth in key technology sectors, business incubator development, entrepreneurial training investment in one or more privately managed emerging technology sector investment funds, development of industry-university cooperative research centers, industry networking support, business plan preparation, market research, infrastructure repair and construction, workforce development including, but not limited to, providing funds for programs that provide education and training to enhance the skills of low skilled workers, brokered business assistance services and marketing expenses, provided that written notice shall be given to the house and senate committees on ways and means at least 10 business days before any disbursement of funds amounting to \$250,000 or more. The institute shall also file an annual report of its activities with the house and senate committees on science and technology and ways and means.

(b) No grant shall be awarded from the innovation institute fund without the corporation first having consulted with the appropriate regional competitiveness council or sub-regional competitiveness council established by the department of business and technology. The request for consultation shall be submitted not less than 15 business days prior to the execution of any grant award contract. All successful grant applications shall define specific goals and expected outcomes and contain corresponding accountability measures. Applicants that fail to meet these accountability measures shall be barred from pursuing any additional grants under this section for 5 years from the effective date of the grant. Notwithstanding any general or special law or rule or regulation to the contrary, in order to support regional economic development throughout the commonwealth, any organization found to be eligible to receive financial assistance from the innovation institute fund in support of certain specified purposes and activities shall be deemed to be eligible as well to receive financial assistance for such specified purposes and activities as qualified investments of the emerging technology fund established pursuant to section 27 of chapter 23G of the General Laws and a portion of the emerging technology fund shall be allocated and reserved for such application.

(c) In making the initial round of grants from the innovation institute fund, no less than \$500,000 shall be distributed over a 3 year period to each of the 5 geographic regions of the state, the central area, the greater Boston area, the north east area, the south east area and the western area, as those areas are defined generally as follows:

"Central Area", the Northern Worcester Service Delivery Area and the Southern Worcester Service Delivery Area as specified in 20 CFR 661.280;

"Greater Boston Area", the Boston Service Delivery Area, the Metropolitan North Service Delivery Area and the Metropolitan South/West Service Delivery Area as specified in 20 CFR section 661.280;

"North East Area", the Lower Merrimack Valley Service Delivery Area, the Northern Middlesex Service Delivery Area and the Southern Essex Service Delivery Area as specified in 20 CFR 661.280;

"South East Area", the Bristol Service Delivery Area, the Brockton Service Delivery Area, the Cape and Islands Service Delivery Area, the New Bedford Service Delivery Area and the South Coastal Service Delivery Area as specified in 20 CFR 661.280; and

"Western Area", the Berkshire Service Delivery Area, Franklin/Hampshire Service Delivery Area and Hampden Service Delivery Area as specified in 20 CFR 661.280.

SECTION 19. Said chapter 40J is hereby further amended by inserting after section 4E the following 2 sections:-

Section 4F. (a) There is hereby established and set up on the books of the corporation the Massachusetts Research Center Matching Fund, hereinafter referred to as the "matching fund," to which shall be credited the proceeds of any bonds or notes of the commonwealth issued for the purpose, and any appropriations designated by the general court to be credited thereto. The matching fund shall be administered by the John Adams Innovation Institute established by section 6A. The corporation shall hold the matching fund in an account or accounts separate from other funds of the corporation. The purpose of the matching fund is to provide matching funds to be available to institutions of higher education and other nonprofit research institutions located in the commonwealth in connection with applications by such institutions for scientific or engineering research funding from the federal government or other sources or in connection with collaborative academic research centers and for projects to support technology platforms and industry cluster development supported by the corporation, provided, however, that any such grant awarded in accordance with this section shall leverage at least \$1 for each dollar granted.

This fund shall also support Centers of Excellence, hereinafter referred to as Centers, for research and innovations in targeted emerging technologies. Centers shall (i) perform basic research relevant to its targeted sector, (ii) enhance the development of technology in the targeted sector, (iii) provide technical assistance to current or prospective companies involved in the targeted sector for product development, (iv) involve or employ higher education and secondary education students and faculty in research and in the center's operations, (v) facilitate faculty externships and student internships in targeted sector industries, and (vi) provide incumbent employee training for high level sector related skills. To be designated a Center, the following must be demonstrated: (1) an expertise in the targeted technology sector; (2) a collaboration with other institutions of higher education; (3) a collaboration with 1 or more industries and nonprofit partners; and (4) a creation of an advisory board that represents its targeted sector related stakeholders. In the first year, 3 such Centers shall target the research and development of medical devices, nanotechnology and biotechnology. One of the first 2 Centers shall be located in southwestern Massachusetts, and the other shall be located in northeastern Massachusetts. Any funds allocated for Centers shall be matched in the first year with at least \$1 from federal or private funding sources for each dollar granted. The match requirements shall increase in subsequent years to at least \$2 from federal or private sources for each \$1 granted. Two-thirds of the matched funds may be in-kind. The corporation shall adopt rules and regulations for the administration of the matching fund, which rules and regulations shall be transmitted 60 days in advance to the executive office for administration and finance, the department of economic development, the house and senate committees on ways and means and the house and senate committees on science and technology.

(b) There shall be a broadband access oversight council within the Massachusetts Technology Park Corporation for the purpose of increasing broadband internet services in underserved communities. The council shall be comprised of 12 members, 1 of whom shall be designated by the Franklin-Hampshire Connect; 1 of whom shall be designated by the Berkshire Connect; 1 of whom shall be designated by the Massachusetts Association of Regional Planning Agencies; 1 of whom shall be designated by the Massachusetts Municipal Association; 1 of whom shall be the secretary of economic affairs; 1 of whom shall be the chairman of the commonwealth development council; 1 of whom shall be the chairman of the department of telecommunications and energy; and 5 of whom shall be appointed by the governor, one of whom shall be a representative from the telecommunications industry. The council shall develop and recommend strategies to achieve broadband internet expansion to every community in the commonwealth. Specifically the council shall: (1) identify communities that lack broadband internet service and leverage the telecommunications purchasing power of the commonwealth and the private sector

to bring broadband internet service to every community in the commonwealth; (2) identify appropriate technologies and strategies to bring broadband internet service into underserved communities; (3) identify specific state properties that, if made available, would facilitate the deployment of these technologies to achieve service in under-served areas; and (4) take other action considered necessary to fulfill the goal of broadband marketplace choice in underserved communities. The council shall annually submit any recommendations and make periodic reports on progress being made towards achieving these goals to the department of business and technology, the house and senate committees on science and technology, the joint committee on commerce and labor, and the house and senate committees on ways and means.

SECTION 70. Notwithstanding any general or special law to the contrary, the comptroller shall transfer, effective December 31, 2003, to the Massachusetts Technology Park Corporation established pursuant to section 3 of chapter 40J of the General Laws, the amount of \$15,000,000 from the Economic Stimulus Trust Fund, established pursuant to this act, for the creation and operation of the John Adams Innovation Institute under said Massachusetts Technology Park Corporation, established pursuant to section 6A of chapter 40J. Said amount shall be deposited in a separate fund, administered by said corporation, which shall be expended exclusively for the uses established in said section 6A. Commencing on April 1, 2004, the executive director of said corporation shall report quarterly to the house and senate committees on ways and means, the house and senate committees on science and technology, and the joint committee on commerce and labor on the following: (i) a detailed description of purposes and amounts of administrative costs charged to the fund, (ii) the annual budget of the John Adams Innovation Enterprise, (iii) a quarterly statement of cash inflows and outflows detailing the sources and uses of funds, (iv) a description of the organizations receiving funds from this fund, the purposes to which the funding will be used by said organizations, (v) the associated amounts received by each organization, (vi) the amounts of non-state funding leveraged as a result of the funding, a potential projection of the number and nature of employment opportunities that may be created in the commonwealth as a result of the various forms of assistance disbursed from said fund, and (vii) an analysis of the purposes and geographical location of projects funded through the John Adams Innovation Enterprise.

SECTION 74. Notwithstanding any general or special law to the contrary, the comptroller shall transfer, effective December 31, 2003, \$20,000,000 from the Economic Stimulus Trust Fund, established pursuant to this act, to the Massachusetts Research Center Matching Fund, established pursuant to section 4F of chapter 40J of the General Laws for the creation and operation of the fund under the Massachusetts Technology Park Corporation. Commencing on April 1, 2004, the executive director of the corporation shall report quarterly to the house and senate committees on ways and means, the house and senate committees on science and technology, and the joint committee on commerce and labor the following: a list of grant recipients, the associated grant amounts, the amounts of non-state funding leveraged as a result of the grants, the purposes of the grants, a quarterly statement of cash inflows and outflows detailing the sources and uses of funds, a forecast of future payments based on current binding obligations, and a detailed breakdown of the purposes and amounts of administrative costs charged to the fund.

## Appendix B. Summary of Economic Development Incentives and Programs

- **Business Incentives/Tax Credits**

a. Single Sales Factor - In order to offer an attractive tax environment for businesses, Massachusetts has a Single Sales Factor which reduces the tax burden for manufacturers and other qualifying companies.

b. Economic Development Incentive Program - The Economic Development Incentive Program (EDIP) is a state and local tax incentive that can significantly reduce the cost of doing business for companies expanding or locating in Massachusetts.

c. Research & Development Tax Credit - Massachusetts offers a tax incentive for research and development investment for both manufacturers and R&D companies. This tax incentive is designed to encourage R&D investment and spur growth and innovation.

d. Investment Tax Credit - The Massachusetts Investment Tax Credit (ITC) offers a three percent credit for qualifying businesses against their Massachusetts corporate excise tax for the purchase and lease of qualified tangible property used in the course of business operations.

e. Jobs Creation Tax Rebate for Biotechnology & Medical Device Manufacturers - Qualifying biotechnology and medical device manufacturing companies that increase employment in the state are eligible to receive tax rebate in the form of 50 percent of the withheld state income taxes of the new jobs.

- **Economic Development Grants**

a. The Workforce Training Fund - Through the Workforce Training Fund, Massachusetts' businesses and labor organizations are eligible to receive matching grants of up to \$250,000 and in some cases up to \$1 million to help pay for critical, up-to-the-minute employee training. Additionally, the fund provides technical assistance grants of up to \$25,000 to help employers access assistance in identifying training needs, developing a training plan, curriculum or other training-related activities.

b. Workforce Training Fund Express Program - The Workforce Training Fund Express (WFT Express) offers matching grants to Massachusetts employers to train current and newly hired employees. The program is targeted to small employers with a maximum of 50 employees and to labor organizations.

c. Emerging Technology Fund - The Emerging Technology Fund provides loans and guarantees for facilities and specialized equipment used by technology-based companies. The Fund can also make matching grants to universities, colleges, public institutions, companies and other entities to induce the federal government, industry and other grant-funding sources to fund advanced research and development activities in new and emerging technologies. Additionally, the Fund can provide bridge financing to public or private institutions, companies, and other entities in anticipation of the receipt of grants to be awarded by the federal government, industry, or other sources.

- **Loans and Financing Programs**

a. Economic Stabilization Trust - The Economic Stabilization Trust (Trust) is a quasi-public loan fund that lends “high-risk” working capital to established small and medium sized manufacturing and other value-added businesses in the Commonwealth. The Trust provides loans in situations where traditional financing is not available or credit is no longer being extended.

b. Mass Development loans, guarantees and bond financing programs - By providing financial and technical assistance, Mass Development fosters real estate and business projects that generate economic benefits for local communities and the state as a whole. These include Real Estate Loans, Loan Guarantees, Working Capital and Equipment Loans and a Brownfields Redevelopment Fund. Mass Development's bond financing programs offer a cost-effective way to finance real estate and equipment. Lower rates and flexible terms keep Massachusetts borrowers competitive. These include taxable and tax exempt bonds as well as a tax exempt equipment lease purchase program.

- **Selected Economic Development Programs**

a. Massachusetts Tech Transfer Center - The Center's mission is to facilitate the transfer of technology from the commonwealth's research institutions to the commonwealth's industries, for productive use by such industries. The center provides advice and assistance to public and private research institutions on strategies for technology transfer including advice and assistance in the following areas: assessing the viability and value of developing technologies; defining and exploiting potential markets for such technologies; commercialization strategies; intellectual property issues, including licensing strategies; and business development.

b. District Improvement Finance Program - The District Improvement Financing Program (DIF) is a public financing alternative available to all cities and towns in the Commonwealth. The DIF enables municipalities to fund public purpose works, infrastructure, development, and redevelopment by allocating future, incremental tax revenues collected from a predefined district to the repayment of a financing or to fund projects on a pay-as-you-go basis.

c. International Exporting - Massachusetts offers a range of targeted, customized services to help businesses succeed in the global marketplace. Some of these activities include assistance with export planning, strategy and international business plan development; assessment and selection of target export markets; international channel development including identification and qualification of overseas customers and partners; international payment and financing; export logistics and documentation; export regulatory compliance.

## Appendix C. Innovation Institute Fund (Regional Fund) Allocation

### Region 1: Berkshire

Adams	Lanesborough	Richmond
Alford	Lee	Sandisfield
Becket	Lenox	Savoy
Cheshire	Monterey	Sheffield
Clarksburg	Mt. Washington	Stockbridge
Dalton	New Ashford	Tyringham
Egremont	New Marlborough	Washington
Florida	North Adams	West Stockbridge
Great Barrington	Otis	Williamstown
Hancock	Peru	Windsor
Hinsdale	Pittsfield	

### Region 2: Boston Metro

Acton	Holliston	Randolph
Arlington	Hopkinton	Revere
Ashland	Hudson	Saugus
Bedford	Hull	Sharon
Bellingham	Lexington	Sherborn
Belmont	Lincoln	Somerville
Bolton	Littleton	Southborough
Boston	Lynn	Stoneham
Boxborough	Malden	Stow
Braintree	Marlborough	Sudbury
Brookline	Maynard	Swampscott
Burlington	Medfield	Wakefield
Cambridge	Medford	Walpole
Canton	Medway	Waltham
Carlisle	Melrose	Watertown
Chelsea	Milford	Wayland
Cohasset	Millis	Wellesley
Concord	Milton	Weston
Dedham	Nahant	Westwood
Dover	Natick	Weymouth
Everett	Needham	Winchester
Foxborough	Newton	Winthrop
Framingham	Norfolk	Woburn
Franklin	Norwood	Wrentham
Hingham	Quincy	
Holbrook		

**Region 3: Cape & Islands**

Barnstable  
 Bourne  
 Brewster  
 Chatham  
 Dennis  
 Eastham  
 Falmouth  
 Harwich

Mashpee  
 Orleans  
 Provincetown  
 Sandwich  
 Truro  
 Wellfleet  
 Yarmouth  
 Chilmark

Edgartown  
 Gay Head  
 Gosnold  
 Oak Bluffs  
 Tisbury  
 West Tisbury  
 Nantucket

**Region 4: Central**

Ashburnham  
 Ashby  
 Athol  
 Ayer  
 Clinton  
 Fitchburg  
 Gardner  
 Groton  
 Harvard  
 Hubbardston  
 Lancaster  
 Leominster  
 Lunenburg  
 Petersham  
 Phillipston  
 Royalston  
 Shirley  
 Sterling  
 Templeton  
 Townsend  
 Westminster

Winchendon  
 Auburn  
 Barre  
 Berlin  
 Blackstone  
 Boylston  
 Brookfield  
 Charlton  
 Douglas  
 Dudley  
 East Brookfield  
 Grafton  
 Hardwick  
 Holden  
 Hopedale  
 Leicester  
 Mendon  
 Millbury  
 Millville  
 New Braintree  
 North Brookfield

Northborough  
 Northbridge  
 Oakham  
 Oxford  
 Paxton  
 Princeton  
 Rutland  
 Shrewsbury  
 Southbridge  
 Spencer  
 Sturbridge  
 Sutton  
 Upton  
 Uxbridge  
 Warren  
 Webster  
 West Boylston  
 West Brookfield  
 Westborough  
 Worcester

**Region 5: Northeast**

Billerica  
 Chelmsford  
 Dracut  
 Dunstable  
 Lowell  
 Pepperell  
 Tewksbury  
 Tyngsborough  
 Westford  
 Amesbury  
 Andover  
 Boxford  
 Georgetown  
 Groveland

Haverhill  
 Lawrence  
 Merrimack  
 Methuen  
 Newbury  
 Newburyport  
 North Andover  
 Rowley  
 Salisbury  
 West Newbury  
 Beverly  
 Danvers  
 Essex  
 Gloucester

Hamilton  
 Ipswich  
 Lynnfield  
 Manchester  
 Marblehead  
 Middleton  
 North Reading  
 Peabody  
 Reading  
 Rockport  
 Salem  
 Topsfield  
 Wenham  
 Wilmington

**Region 6: Pioneer Valley**

Ashfield	Warwick	Longmeadow
Bernardston	Wendell	Ludlow
Buckland	Whately	Middlefield
Charlemont	Agawam	Monson
Colrain	Amherst	Montgomery
Conway	Belchertown	Northampton
Deerfield	Blandford	Palmer
Erving	Brimfield	Pelham
Gill	Chester	Plainfield
Greenfield	Chesterfield	Russell
Hawley	Chicopee	South Hadley
Heath	Cumington	Southampton
Leverett	East Longmeadow	Southwick
Leyden	Easthampton	Springfield
Monroe	Goshen	Tolland
Montague	Granby	Wales
New Salem	Granville	Ware
Northfield	Hadley	West Springfield
Orange	Hampden	Westfield
Rowe	Hatfield	Westhampton
Shelburne	Holland	Wilbraham
Shutesbury	Holyoke	Williamsburg
Sunderland	Huntington	Worthington

**Region 7: Southeast**

Duxbury	Plympton	Middleborough
Hanover	West Bridgewater	New Bedford
Marshfield	Whitman	North Attleborough
Norwell	Acushnet	Norton
Rockland	Attleborough	Plainville
Scituate	Berkley	Raynham
Abington	Carver	Rehoboth
Avon	Dartmouth	Rochester
Bridgewater	Dighton	Seekonk
Brockton	Fairhaven	Somerset
East Bridgewater	Fall River	Swansea
Easton	Freetown	Taunton
Halifax	Lakeville	Wareham
Hanson	Mansfield	Westport
Kingston	Marion	Pembroke
Plymouth	Mattapoissett	Stoughton

## Appendix D. MTC Board of Directors

### Executive Committee

**Dr. Karl Weiss**, *Board Chairperson*, MTC; *Professor Emeritus*, [Northeastern University](#)

**Mr. Lawrence J. Reilly**, *Board Vice-Chairperson*, MTC; *Senior Vice President, General Counsel and Secretary*, [National Grid USA](#)

**Mr. David D. Fleming**, *Group Senior Vice President and Corporate Officer*, [Genzyme Corporation](#)

**Dr. Paul C. Martin**, *John H. Van Vleck Professor of Pure and Applied Physics, Dean for Research and Information Technology*, [Harvard University](#)

### Board Members

**Mr. Patrick Carney**, *Executive Vice President*, Members Plus Credit Union

**Dr. Aram V. Chobanian**, *President ad interim*, [Boston University](#)

**Mr. Michael J. Cronin**, *President and CEO*, [Cognition Corporation](#)

**Dr. Priscilla Douglas**, *President*, PHDouglas & Associates

**Mr. Thomas A. Farrington**, *President and CEO*, [Farrington Associates, Inc.](#)

**Dr. Patricia M. Flynn**, *Trustee Professor of Economics and Management*, [Bentley College](#)

**Ms. Debra Germaine**, *Senior Partner, International Technology Practice*, [Heidrick & Struggles International, Inc.](#)

**Ms. Judith I. Gill**, *Chancellor*, [Massachusetts Board Higher Education](#)

**Mr. C. Jeffrey Grogan**, *Partner*, [Monitor Group, LP](#)

**Mr. Alain J. Hanover**, *Managing Director and CEO*, [Navigator Technology Ventures](#)

**The Honorable Eric A. Kriss**, *Secretary*, [Massachusetts Executive Office for Administration and Finance](#)

**Ms. Gloria C. Larson**, *Partner*, [Foley Hoag LLP](#)

**Mr. Paul Wesley Nakazawa**, *President*, Nakazawa Consultants; *Lecturer in Architecture*, [Harvard University, Graduate School of Design](#)

**Dr. Lindsay Norman**, *President*, [Massachusetts Bay Community College](#)

**William H. O'Rourke**, *Business Manager*, [International Brotherhood of Electrical Workers](#), Local Union 455

**Dr. Joan Y. Reede**, *Dean for Diversity and Community Partnership*, [Harvard Medical School](#)

**Dr. Krishna Vedula**, *Professor of Engineering*, [UMass](#), Lowell

**CHARTER AND BY-LAWS  
OF THE  
JOHN ADAMS INNOVATION INSTITUTE  
GOVERNING BOARD**

**ARTICLE I – GENERAL PROVISIONS**

**Section 1. Name.** The name of the Governing Board shall be the John Adams Innovation Institute Governing Board (the "Governing Board").

**Section 2. Purpose and Function.** The John Adams Innovation Institute (the "Institute") was established pursuant to Section 18 of Chapter 141 of the Acts of 2003, which added Section 6A to Chapter 40J of the General Laws of the Commonwealth. The Institute administers the Innovation Institute Fund, established pursuant to said Section 18 of Chapter 141 of the Acts of 2003, and the Massachusetts Research Center Matching Fund (the "Matching Fund"), which was established pursuant to Section 19 of Chapter 141 of the Acts of 2003, and which added Section 4F to Chapter 40J of the General Laws of the Commonwealth.

The Innovation Institute Fund and the Massachusetts Research Center Matching Fund are administered solely by the Board of Directors of the Massachusetts Technology Park Corporation, a public instrumentality of the Commonwealth of Massachusetts that does business as the Massachusetts Technology Collaborative ("MTC"). Upon approval of a detailed plan for the operation of the Institute by the MTC Board of Directors, the Governing Board shall exercise such authority as may be delegated from time to time by the MTC Board of Directors.

MTC established the Institute in 2004 as an operating division of the corporation encompassing the two investment funds established by the Legislature as well as a portfolio of existing activities:

1. **The Innovation Institute Fund** is intended to support regional initiatives that will spur technology-based economic development across the Commonwealth;
2. **The 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; and
3. **Other Program Activities** that support the mission of the Institute, and that are funded primarily through external funds from sources such as state government, federal government, foundations, and private industry.

The overall mission of the Institute is to promote the growth of the Innovation Economy in Massachusetts. The Institute intends to fulfill its mission 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. These activities will be carried out through three broad-based and interrelated programmatic functions: (1) grantmaking; (2) development assistance; and (3) research and analysis.

The Governing Board will play a critical role in directing, overseeing, and implementing the detailed plan for the Institute. The Governing Board will perform specific functions and carry out responsibilities, as may be modified from time to time by the MTC Board of Directors, including, but not limited to:

1. Review and approve proposals for financial assistance and other expenditures of funds from the Innovation Institute Fund and the Matching Fund up to the formal limits of authority delegated by the MTC Board of Directors as provided in MTC's Policy for the Award of Financial Assistance and Services Procurement Policy, as may be amended from time to time. The delegation of authority shall be consistent with the scope of authority delegated to the Renewable Energy Trust Committee of the Board of Directors. The Governing Board may delegate in specific instances all or a portion of its formal authority to the MTC Executive Director when it determines that such a delegation advances the public purpose(s) for which such funds were appropriated by the Legislature. Examples of the types of expenditures that are covered by this provision, include, but are not limited to:
  - Proposals for financial assistance, in any form, including, but not limited to, grants, investments, sponsorships, and other forms of aid;
  - Proposals for non-financial, development assistance;
  - Proposals for research studies and related analytical work commissioned or carried out by the Institute; and
  - Procurements of professional services from external vendors.
2. Provide formal, written recommendations on Institute-related matters that exceed the authority of the Governing Board.
3. Provide input, advice, and recommendations to the Institute Director, the MTC Executive Director, and the MTC Board of Directors (as deemed necessary and appropriate by the respective parties) on matters related to the operation of the Institute, including, but not limited to:
  - development and periodic updating and revision of the detailed plan for the Institute;
  - development of five year strategic plans for the Institute;
  - development of annual operating plans and budgets for the Institute;

- development of rules and regulations for the administration of the Innovation Institute Fund and the Matching Fund;
  - creation of a research agenda for independent, nonpartisan studies to be produced by the Institute on issues related to science, technology, competitiveness and economic development in the Commonwealth; and
  - development of solicitations for financial assistance awards, centers of excellence designation, non-financial forms of assistance, and professional services.
  - creation of new programs and initiatives or the modification of existing programs and initiatives.
4. Provide input, advice, and recommendations to the Institute Director, the MTC Executive Director and the MTC Board of Directors on matters that draw upon the Governing Board's expertise but are beyond the Governing Board's formal authority.
  5. Provide proactive leadership and serve as advocates for the public mission of the Institute.
  6. Provide fiduciary oversight and accountability for the implementation of annual operating plans, adherence to annual budgets, compliance with peer review requirements, and the expenditure of public monies for professional services, administrative and operating expenses, and awards of financial assistance (commensurate with the scope of authority delegated by the MTC Board of Directors). The Director of the Institute shall provide the Governing Board with regular reports on awards and expenditures approved by the MTC Executive Director pursuant to the authority delegated by the MTC Board of Directors or the Governing Board. The Director of the Institute shall also provide the Governing Board with monitoring and evaluation reports, information, and data to assist in assessing the performance of the Institute.
  7. Cooperate with the MTC Executive Director and Board of Directors on all reporting, notification, consultation, audit and monitoring and evaluation requirements, required by law or reasonably requested by MTC, including, but not limited to:
    - Quarterly reports by the Executive Director to the House and Senate Committees on Ways and Means, the House and Senate Committees on Science and Technology, and the Joint Committee on Commerce and Labor as required by Sections 70 and 74 of Chapter 141 of the Acts of 2003.
    - Annual report on the activities of the Institute to be filed with the House and Senate Committees on Ways and Means and the House and Senate Committees on Science and Technology.
    - Written notification to the House and Senate Committees on Ways and Means at least ten days prior to any disbursement from the Innovation Institute Fund of funds amounting to \$250,000 or more.

- Submission of rules and regulations for the administration of the Matching Fund at least sixty days prior to implementation to the Executive Office for Administration and Finance, the Department of Business and Technology, the House and Senate Committees on Ways and Means, and the House and Senate Committees on Science and Technology.
- Annual fiscal year audits performed by the audit firm engaged by MTC.
- Periodic audits performed by the Office of the State Auditor.
- Any federal requirements that are imposed on MTC through the implementation of the Matching Fund.
- Comprehensive, periodic evaluations and assessments of the performance of the Institute conducted by MTC as part of its corporate monitoring and evaluation program.

Additional functions, activities, responsibilities and purposes of the Governing Board may be specified from time-to-time by the MTC Board of Directors in one or more charges to the Governing Board.

## **ARTICLE II – GOVERNING BOARD**

**Section 1. Enumeration.** The Governing Board shall consist of not less than ten members (the “Members”), including the MTC Executive Director, the Director of the Massachusetts Department of Business and Technology, the President of the Massachusetts Development Finance Agency and at least seven members appointed by the MTC Board of Directors, based on recommendations submitted by the MTC Executive Director. The Members appointed by the MTC Board of Directors shall include a president of a state community college, a CEO or president of an emerging technology company, a representative of a regional planning agency, and a technology transfer officer or individual qualified in technology commercialization from a Massachusetts university.

Each Member may elect to appoint a designee with comparable knowledge and expertise, provided that advance, written notice of such designation is submitted to the Director of the Institute with copies to the MTC Executive Director and the Chairperson of the MTC Board of Directors. Unless the designation notice contains a termination date, it shall remain in effect until revoked by the Member or rejected in writing by the Chairperson of the MTC Board of Directors. Members are expected to attend Governing Board meetings and utilize a designee only under special circumstances when attendance is not reasonably feasible.

**Section 2. Tenure.** Each Member appointed from the list of recommendations submitted by the MTC Executive Director shall serve for a term of five (5) years and thereafter until a successor is appointed, except that in making initial appointments, the Governing Board appointment slots shall be staggered as follows:

- First, Sixth and Eleventh: One year
- Second, Seventh and Twelfth: Two years
- Third, Eighth and Thirteen: Three years
- Fourth, Ninth, and Fourteenth: Four years
- Fifth, Tenth, and Fifteenth: Five years

The Chairperson of the MTC Board of Directors shall issue a letter of appointment to each Member specifying the term of appointment. Any Member shall be eligible for reappointment. There is no limit on the number of consecutive terms that a Member may serve.

**Section 3. Vacancy.** In the event of a vacancy on the Governing Board, the MTC Board of Directors shall request that the MTC Executive Director submit a list of recommendations of individuals to fill such vacancy that possess the qualifications required by Section 6A of Chapter 40J of the Massachusetts General Laws, as may be amended from time to time. The MTC Board of Directors, based on recommendations submitted by the MTC Executive Director, shall appoint an individual to fill such vacancy to serve for the unexpired term of the predecessor. In the event of a vacancy, the remaining Members shall have, and may exercise, all of their powers pursuant to these By-Laws notwithstanding the existence of one or more vacancies in their number.

**Section 4. Removal and Suspension.** Removal or suspension of a Member shall be at the sole discretion of the MTC Board of Directors.

**Section 5. Resignation.** Any Member may resign by delivering his resignation in writing to the Director of the Institute with copies thereof to the MTC Executive Director and the Chairperson of the MTC Board of Directors. Such resignation shall be effective upon its receipt or upon such date (if any) as is set forth therein.

**Section 6. Material Change in Status.** All Members shall promptly notify the Director of the Institute, with copies to the MTC Executive Director and the Chairperson of the MTC Board of Directors of either a material change in their position with their current employer or a change in employment.

**Section 7. No Compensation.** The Members shall serve without compensation but each Member shall be eligible to receive reimbursement for ordinary and necessary expenses incurred in furtherance of official duties.

**Section 8. Application of Chapter 268A of the General Laws.** Section 6A of Chapter 40J of the Massachusetts General Laws provides that individuals who serve on the Governing Board shall be subject to the provisions of the Commonwealth's Conflict of Interest Statute, located at Massachusetts General Laws, Chapter 268A. As special state employees, Governing Board Members may not, among other things, participate in

any particular matter in which such Member has a financial interest, nor may they generally maintain a financial interest in any contract in which the Commonwealth is an interested party. To the extent that a Member's participation in a particular matter before the Governing Board or the existence of a financial interest may cause a reasonable person to conclude that any person can improperly influence or unduly enjoy the Governing Board's favor in the performance of the Governing Board's duties, the Member shall – (1) file with MTC's Executive Director and the State Ethics Commission a written disclosure of the facts and circumstances surrounding the particular matter or financial interest; and (2) abstain from participating in the particular matter before the Governing Board. Any such disclosure and recusal shall be recorded in the minutes of the proceedings of the Governing Board.

### **ARTICLE III – COMMITTEES AND WORKING GROUPS**

**Section 1. Executive Committee.** The Chair, the Vice Chair, and the MTC Executive Director shall constitute the Executive Committee of the Governing Board; provided that all Governing Board Members shall be notified in advance of any Meeting of the Executive Committee and shall have the opportunity to attend such meetings and participate in the discussion therein. The Chairperson of the MTC Board of Directors may expand the size of the Executive Committee and appoint additional members to the Executive Committee, provided that number of Executive Committee member shall not exceed seven. The MTC Board of Directors shall appoint a Member of the Governing Board to serve on the Executive Committee in the event that the MTC Executive Director is serving as Chair or Vice Chair of the Governing Board. The Executive Committee shall have all the powers of the Governing Board between Meetings of the Governing Board, except as otherwise provided by law.

**Section 2. Advisory Committees and Working Groups.** The Governing Board, in consultation with the Director of the Institute may establish informal advisory committees and working groups consisting of Members and/or additional individuals to provide expertise, advice, and recommendations on matters within the jurisdiction of the Governing Board. External parties may be brought in to supplement the expertise of the staff and Governing Board of the Innovation Institute in areas that are germane to general programmatic matters, as well as specific proposals for assistance under consideration by the Governing Board. These informal advisory committees or working groups may submit recommendations or findings to the Governing Board but, shall not, under any circumstances have any formal authority to bind the Governing Board or take any actions on behalf of the Governing Board. A Meeting of an Advisory Committee or Working Group shall be conducted in accordance with the provisions of Section 5 of Article 5, herein.

### **ARTICLE IV - OFFICERS**

**Section 1. Enumeration.** The officers of the Governing Board shall consist of the Chair, the Vice-Chair, and the Secretary.

**Section 2. Designation, Qualification, and Tenure.** The Chair and Vice-Chair shall initially be designated by the Chairperson of the MTC Board of Directors, who may from time-to time and for any reason revise, amend, modify or revoke any designation hereunder and the terms thereof. The Secretary shall be the Director of the Institute or

some other individual designated from time to time by the Chairperson of the MTC Board of Directors. Except for the Secretary, all Officers shall be Members in good standing of the Governing Board.

**Section 3. Resignation and Removal.** Any officer of the Governing Board may resign by delivering his resignation in writing to the Chairperson of the MTC Board of Directors with copies to the Director of the Institute and the MTC Executive Director. Such resignation shall be effective upon receipt or upon such date (if any) as is stated in such resignation, unless otherwise determined by the Chairperson.

**Section 4. Chair.** The Governing Board shall annually elect from among its Members a Chairperson. The Chair shall have general supervision and control of the affairs of the Governing Board. The Chair, when present, shall preside at all meetings of the Governing Board and shall have such other powers and duties as may be vested in him from time to time by the MTC Board of Directors.

**Section 5. Vice-Chair.** The Governing Board shall annually elect from among its Members a Vice-Chairperson. The Vice-Chair shall perform the duties of the Chair in the absence or incapacity thereof, and, in the case of the resignation or death of the Chair, shall perform the duties of the Chair until such time as the Chairperson of the MTC Board of Directors shall designate a new Chair. In the absence or incapacity of the Vice-Chair, or in the case of his resignation or death, the Members shall elect from among their number an acting Vice-Chair during the time of such absence or disability, or until such time as the Chairperson of the MTC Board of Directors shall designate a new Vice-Chair. The acting Vice-Chair shall serve until his successor is designated.

**Section 6. Secretary of the Governing Board.** The minutes and records of all meetings of the Governing Board shall be prepared and maintained by the Secretary. The Secretary shall keep such minutes and records within the Commonwealth at MTC's principal office at 75 North Drive, Westborough, MA. The Secretary shall also keep the original or attested copies of these By-laws and the names of all Members and the addresses of each such person. The Secretary shall have such other responsibilities and shall perform such other duties as the Chairperson of the MTC Board of Directors may from time to time prescribe.

**Section 7. Amendments.** To the extent legally permissible, the MTC Board of Directors or its designee shall have the sole power to make, amend, or repeal these By-laws, except as to the indemnification provisions contained in Article VI, Section 3, which may not be modified to diminish the protections afforded to a Member for liabilities that arise as a result of acts or omissions that occur during the Member's current or prior terms of appointment.

## **ARTICLE V- MEETINGS**

**Section 1. Meetings.** The Governing Board shall meet not less than four times per year, and at such additional times as may be specified from time to time by the Chair.

**Section 2. Notice of Meetings.** A written notice of each meeting of the Governing Board stating the purpose or agenda, place, date and time thereof shall be given to each Member by the Chair or the Secretary with a copy thereof provided to the MTC

Executive Director and the Chairperson of the MTC Board of Directors. Notice shall be given to each Member by mail (postage prepaid and properly addressed) or by electronic mail, telecopy or telegram, or by delivery in person or by telephone at least forty-eight hours (48) in advance of the meeting. Whenever notice of a meeting is required, such notice need not be given to any Member if a written waiver of notice, executed by him (or his attorney duly authorized) before or after the meeting, is filed with the records of the meeting, or to any Member who attends the meeting without protesting the lack of notice before the meeting or before action is taken at the meeting.

**Section 3. Quorum and Action.** At any meeting of the Governing Board, half of the number of Members duly appointed and eligible to serve shall constitute a quorum if there is an even number of Members; otherwise a majority of the number of Members duly appointed and eligible to serve shall constitute a quorum. Each Member shall have one vote. The affirmative vote of a majority of Members present and eligible to vote at a Meeting shall be required for any action to be taken by the Governing Board; provided, that any Meeting may be adjourned by a majority of the votes cast upon the question, whether or not a quorum is present, and the Meeting may be held as adjourned without further notice.

**Section 4. Attendance.** The Secretary shall notify the Chair of the Governing Board, the MTC Executive Director, and the Chairperson of the MTC Board of Directors if any Member fails to attend three consecutive Meetings. Absent a finding of extenuating circumstances by the Chairperson of the MTC Board of Directors, the Chairperson may request that such Member submit a letter of resignation.

**Section 5. Record Keeping and Public Meetings.** All Meetings of the Governing Board (including any committees thereof) shall be conducted in accordance with the requirements of Section 11A-1/2 of Chapter 30A of the Massachusetts General Laws. The Secretary of the Corporation, on behalf of the Governing Board, shall give public notice of all Governing Board meetings as specified in Section 11A-1/2 of Chapter 30A of the Massachusetts General Laws.

**Section 6. Organization.** At each meeting of the Governing Board, the Chair, or in his absence the Vice-Chair, or in the absence of both, a Member chosen by a majority of the Members present, shall act as Presiding Officer.

## **ARTICLE VI - MISCELLANEOUS PROVISIONS**

**Section 1. Gender.** The personal pronoun "he" or possessive pronoun "his", when appropriate, shall be construed to mean "she" or "her".

**Section 2. Confidentiality.** MTC is subject to the requirements concerning disclosure of public records under the Massachusetts Public Records Act, Chapter 66 of the Massachusetts General Laws (the "Public Records Act"), which governs the retention, disposition and archiving of public records. For purposes of the Public Records Act, "public records" include all books, papers, maps, photographs, recorded tapes, financial statements, statistical tabulations, or other documentary materials or data, regardless of physical form or characteristics, made or received by MTC. As a result, any information submitted to MTC by an applicant for financial assistance is subject to public disclosure as set forth in the Public Records Act. The foregoing

notwithstanding, "public records" do not include certain materials or data which fall within one of the specifically enumerated exemptions set forth in the Public Records Act or in other statutes, including MTC's enabling act, Chapter 40J of the Massachusetts General Laws. One such exemption that exists is for any documentary materials or data made or received by MTC that consists of trade secrets or commercial or financial information regarding the operation of any business conducted by an applicant for financial assistance, or regarding the competitive position of such applicant in a particular field of endeavor.

Members are required to review MTC's policies and procedures related to the disclosure and treatment of sensitive and confidential information received by a Member by virtue of serving on the Governing Board. Members will be required to return, or destroy, any such confidential information and all copies thereof and all related notes, memoranda, upon the direction of MTC.

**Section 3. Indemnification.** To the extent legally permissible, MTC shall and hereby does indemnify and hold harmless each Member against all liabilities (including all judgments, fines, penalties, legal costs and other expenses) imposed on or reasonably incurred by such person in connection with any claim (including any action, suit or other civil or criminal proceeding) in which such person may be involved or with which such person may be threatened, while such person is in office or thereafter, by reason of such person being or having been such a Member or by reason of such person's acts or omission as such a Member, unless in any action, suit or proceeding, such person shall be finally adjudged to have been guilty of willful dishonesty or intentional violations of law in connection with the matter with respect to which indemnification is to be made; provided, however, that such indemnification shall not cover liabilities in connection with any matter shall be disposed of through a settlement or compromise payment by such person, pursuant to consent decree or otherwise, unless such settlement or compromise shall have been approved by the MTC Board of Directors, after notice that it involves such indemnification and after receipt by them of an opinion of MTC's counsel to the effect that, to the best of such counsel's knowledge after reasonable investigation, such person was not guilty of willful dishonesty or intentional violations of law in connection with the matter in question. Such indemnification shall include prompt payment by MTC, as and when incurred, of expenses incurred in defending against any such claim (including any action, suit or other civil or criminal proceeding) in advance of the final disposition of such claim, upon receipt by MTC of an undertaking by such person to repay any such amounts to MTC if such person shall be finally adjudicated to be not entitled to indemnification under this paragraph. The right of indemnification provided in this paragraph shall not be exclusive of or affect any other rights to which any Member may be entitled. Any indemnification to which a person is entitled under these provisions shall be provided although such person is no longer a Member. As used in this paragraph, the term "Member" includes his/her respective heirs, executors, and administrators.

## Appendix F. Five Year Innovation Institute Funds Program Award Allocations

	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	<u>Total</u>
<b>Regional Fund</b>	<b>\$ 1,950,000</b>	<b>\$ 3,850,000</b>	<b>\$ 5,800,000</b>	<b>\$ 900,000</b>	<b>\$ -</b>	<b>\$ 12,500,000</b>
Regional Priority Grants	1,000,000	1,300,000	800,000	400,000	0	3,500,000
Regional Project Grants	500,000	2,000,000	1,000,000	500,000	0	4,000,000
Regional Infrastructure	0	0	4,000,000	0	0	4,000,000
Broadband	200,000	300,000	0	0	0	500,000
Public Benefit Service	250,000	250,000	0	0	0	500,000
<b>Match Fund</b>	<b>\$ 5,130,000</b>	<b>\$ 8,300,000</b>	<b>\$ 4,570,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 18,000,000</b>
Center of Excellence Grants	4,100,000	3,900,000	0	0	0	8,000,000
Matching Grants for Research Centers	580,000	3,000,000	3,420,000	0	0	7,000,000
Research Center Development Grants	200,000	400,000	400,000	0	0	1,000,000
Principal Investigator-Industry Grants	0	0	0	0	0	0
University Planning Grants	250,000	1,000,000	750,000	0	0	2,000,000
<b>Total Funds Program Allocation</b>	<b>\$ 7,080,000</b>	<b>\$ 12,150,000</b>	<b>\$ 10,370,000</b>	<b>\$ 900,000</b>	<b>\$ -</b>	<b>\$ 30,500,000</b>

## Appendix G. Abbreviations and Acronyms

BEA	Bureau of Economic Analysis
FTE	Full-time Equivalent Basis
GSP	Gross State Product
Innovation Institute	John Adams Innovation Institute
M&E	Monitoring and Evaluation
MTC	Massachusetts Technology Collaborative
MTPC	Massachusetts Technology Park Corporation
R&D	Research and development
RCC	Regional Competitiveness Councils