



# Context for Public Investment in Growing the Massachusetts Medical Device Cluster

Robert G. Kispert  
Director of Federal & University Programs



John Adams **Innovation** Institute

## Outline

- The role of MTC's John Adams Innovation Institute as an economic development agency making investments in cluster development
- Economic overview of the Massachusetts Medical Device Cluster
- MTC/JAI's investment objectives with M2D2 & MedTech IGNITE



John Adams **Innovation** Institute

# John Adams Innovation Institute

- Quasi-public state economic development agency focused on MA Innovation Economy
  - Research & analysis to track and benchmark the *system of innovation* and economic growth
  - Strategic brokering of key stakeholders
  - Investments in center-based R&D collaborations that attract investment and support cluster growth
  - Investments in cluster institutions and infrastructure that address unmet needs/barriers to growth, thereby promoting regional/ cluster growth



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE

John Adams **Innovation** Institute

# JAIL Track record

- Created two Centers of Excellence in Nanomanufacturing, Apoptosis research that are attracting major funding
- Created a matching grant program that has attracted over \$150MM in federal & private investment to date
- Six development grants to establish centers – 3 have already attracted major federal/center grants
- Regional priority grants and project awards focused on important growth opportunities throughout the state –
  - M2D2 and MedTech Ignite – crossing the valley of death
  - Injection molded plastics – medical device cluster supply chain enhancement
  - Medical Device export development to China



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE

John Adams **Innovation** Institute

## ***2007 Index of The Massachusetts Innovation Economy***

- Continue to see strong fundamentals
  - Skilled workforce
  - High level of R&D Investment
  - High level of Patent Generation
  - High level of seed/venture investment
- Cluster growth continues to lag the other LTS & the US
- New business formation good but lags – particularly in high tech



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE

John Adams **Innovation** Institute

## **Snapshot (cont)**

- Life Sciences and Post Secondary Education continue to be the bright spots when benchmarked against the other LTS & the US



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE

John Adams **Innovation** Institute

## Global Context for Medical Devices

- Massachusetts is one of top three states in medical device employment in US
- MA is one of top 20 regions in the world in terms of employment concentration
  - Location coefficient – 2.99
  - Employment - ~22,000 in 2006
  - Employment grew by 9.5% 2001-2006
- Massachusetts is one of top 3 regions in the world in terms of medical device cluster employment
- US appears to have a strong cluster environment for medical device companies – but Switzerland and Ireland are the fastest growing regions
- Massachusetts medical device companies exhibit strong export performance



John Adams **Innovation** Institute

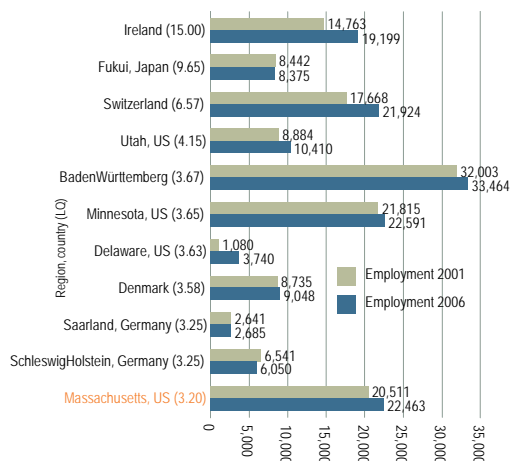
## Medical Device Employment in MA

	Mar-2000	Mar-2001	Mar-2002	Mar-2003	Mar-2004	Mar-2005
325413 - In-Vitro Diagnostic Substance Manufacturing	1.606	1.537	1.599	1.493	1.155	1.981
334510 - Electromedical and Electrotherapeutic Apparatus Manufacturing	5.86	5.924	5.524	6.853	7.076	6.285
334517 - Irradiation Apparatus Manufacturing	1.75	2.183	2.008	2.729	2.159	2.229
339111 - Laboratory Apparatus and Furniture Manufacturing	0.741	0.781	0.789	0.617	0.694	1.022
339112 - Surgical and Medical Instrument Manufacturing	6.92	6.313	7.041	6.773	5.645	6.948
339113 - Surgical Appliance and Supplies Manufacturing	2.59	2.088	2.055	2.545	2.44	2.419
339115 - Ophthalmic Goods Manufacturing	1.674	1.544	1.383	1.449	1.386	1.306
Total	21.141	20.37	20.399	22.459	20.555	22.19



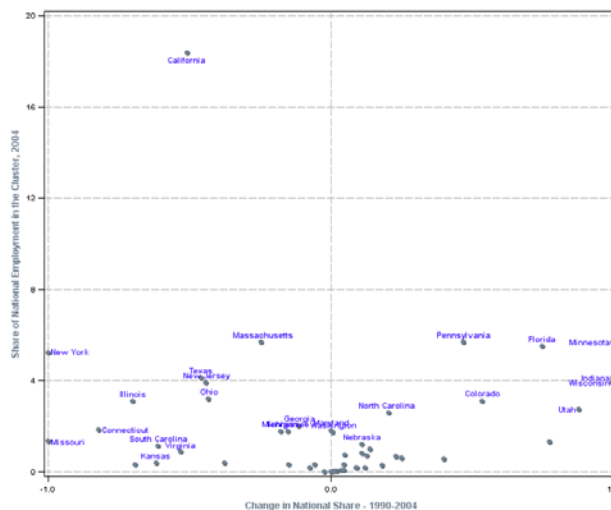
John Adams **Innovation** Institute

# Global Medical Device Clusters



John Adams Innovation Institute

# Change in National Employment Share Medical Device Clusters



John Adams Innovation Institute

## Economic Development Challenge:

*How do we leverage the obvious strengths of the Massachusetts medical device cluster to address emerging national and global competition and to create best advantage for the state's economy!*



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE

John Adams **Innovation** Institute

## Key Points of Leverage

- Increase size and quality of medical device product pipeline by identifying and supporting new opportunities which have clinical significance and commercial market potential
- Accelerate the rate of product development and company formation by enhancing the supporting infrastructure
- Increase the rate of commercialization by improving access to public and private capital to address crossing the “valley of death”



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE

John Adams **Innovation** Institute

# Crossing the Valley of Death

- What do we think we know about barriers?
  - Strong proposals/business plans are key to attracting funding
  - Need commercial/business input as well as clinical context for developing medical devices
  - Working prototypes are essential to attracting private venture and corporate investment
  - Demonstration of safety and efficacy is critical
  - Early access to clinical input can accelerate progress of R&D and increase chances of success
  - Early attention to commercialization is key to commercial success



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE

John Adams **Innovation** Institute

# MedTech IGNITE

Build innovation capacity within the medical device cluster by:

- Providing direct mentoring by experienced medical device company CEO's and senior executives
- Establishing a focused network of Massachusetts-based resources to foster the growth of early stage companies
- Creating education programs to prepare leaders and workforce for producing new medical devices

Enhance cluster growth by:

- Expanding the involvement and investment of resources by private market investors
- Identifying additional barriers to growth and opportunities for increasing opportunities for cooperation among key stakeholders
- Create conditions to increase the number of start-ups and new products in the medical device cluster



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE

John Adams **Innovation** Institute

## M2D2

Build innovation capacity within the medical device cluster by:

- Creating an industry and university-based product development support infrastructure that addresses barriers to product realization and market entry
- Systematizing the evaluation of product ideas and concepts to identify and evaluate viable opportunities for new product development
- Strengthening working relationships between academic institutions (engineering schools, medical schools) and cluster companies through participation in joint development projects
- Establishing a focused network of Massachusetts-based resources to foster the growth of early stage companies
- Creating education programs to prepare leaders and workforce for producing new medical devices

Enhance cluster growth by:

- Expanding the involvement and investment of resources by private market investors
- Identifying additional barriers to growth and opportunities for increasing opportunities for cooperation among key stakeholders
- Create conditions to increase the number of start-ups and new products in the medical device cluster



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE

John Adams **Innovation** Institute

## Success in our mind is:

- New companies
- New products manufactured in Massachusetts
- New private investment that creates economic impact



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE

John Adams **Innovation** Institute