Strategic R&D Partnerships for Economic Development

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Innovation – the Competitive Advantage of Massachusetts

• Innovation – *the transformation of scientific or technological knowledge into the products, processes, systems, and services that fuel economic development, create wealth, and generate improvements in the state’s standard of living.*
Framework for Innovation
Key Drivers of Innovation

- Entrepreneurship
- Strong local networking/clusters
- Local funding for local ideas
- The demanding local customer
- Strong national/global demand

- *Enabling research institutions/federal funding*
Challenges to Leadership

- Massachusetts is a magnet for talent, but opportunities for talent are increasingly global.
- Massachusetts has one of the most R&D intensive economies in the world, but we are failing to maintain our “disproportionate fair share” of academic R&D investment.
- Massachusetts has a strong record in new start-ups, but we need to increase the number of tech start-ups from academic research institutions, federal labs, and industry to fuel our innovation economy.
Challenges to Leadership

• The “Research” and “Tech Transfer” engines of the Innovation Process are strong, but we need to focus on leveraging those strengths in new ways to accelerate economic growth.
To succeed in today’s global economy, we need not only to promote technological innovation; we need to innovate the process of innovation itself!
Centers as Strategic Investments

- Talent
  - Create magnets to attract faculty, students and investment, enhancing both the environment for research and the skills of the future workforce
  - Create partnerships with industry that enhance the labor pool by linking emerging talent to (local) job opportunities
  - Create linkages on multiple levels that reduce potential job/skills mismatches
Centers as Strategic Investments

- **Investments**
  - Centers offer excellent opportunities to accelerate growth in funding for academic R&D, enhancing the knowledge pool supporting economic growth.
  - Centers provide highly leveraged opportunities for state economic development investments.
  - Centers create a critical mass of investment (e.g., federal and industry) focused on executing an integrated research agenda addressing important/emerging market opportunities.
  - Centers create a framework for industrial collaboration and investment that enhances both tech transfer and the climate for tech start-ups.
Centers as Strategic Investments

- Start-ups and Entrepreneurship
  - Centers that focus on emerging market opportunities can provide fertile opportunity for new business start-ups
  - Centers that integrate research into test beds provide strong opportunities to teach project management, multidisciplinary/systems integration, leadership and entrepreneurial skills
  - Centers can provide the critical mass of system integration/application demonstration necessary to attract attention of investors and adopters
Centers as Strategic Investments

• Innovating the Innovation Process
  - Centers can provide an adaptive/ flexible framework for collaboration, concurrent research & development, commercialization, and business development
  - Centers can operate on multiple dimensions of the Innovation Process, from solving technological challenges to creating the framework for regulatory approval and accelerating technology adoption
  - Centers can serve as safe havens for collaboration, addressing issues and barriers to cluster growth that industry cannot address unilaterally
CenSSIS as a Strategic Investment

- CenSSIS has created a magnet that attracts talent and R&D investment to Northeastern and its partners
- CenSSIS is addressing the challenge of developing talented engineers who not only understand how to operate in a multidisciplinary environment, but recognize that entrepreneurship and leadership are essential skills for today’s engineer
- CenSSIS is addressing technology challenges across a wide range of existing and emerging market opportunities that support the growth of key industry clusters in Massachusetts
- CenSSIS has changed the process of innovation by introducing a new business model for industry/university collaboration