Innovation and Manufacturing in the Berkshires
June 13, 2019
#Berkshire Rising
Goal of the Presentation

The Goal of this Presentation is to
- Provide an overview of the History of Advanced Manufacturing in the Berkshires
- Provide an overview of the Berkshire Innovation Center.
- This presentation will include an overview of:
  - The BIC’s facilities
  - The BIC’s services and the various programs
History of the Berkshire County

-Pittsfield-Birthplace of GE, and Former Home of GE Plastics, Ordinance and Transformer Business

• 1907-1987-GE had a significant history in Pittsfield
  • Jack Welch worked in Pittsfield
  • Occupied 300 acres, 50 + buildings on the Housatonic River
• 14,000 jobs lost when the Company left Pittsfield
• Significant pollution of the area due to PCB use

-North Adams-Former Home of Sprague Transformer

• 3,000 jobs lost
• 20% of the residents live below the poverty
Population Decline - Berkshire County
Economic Challenges in Berkshire County

In 2016-the Percentage of Families in Poverty increased from 11% to 13%
# Berkshire County Industry Clusters

<table>
<thead>
<tr>
<th>Economic Performance of Berkshire Industry Clusters</th>
<th>Advanced Manufacturing and Engineering Services</th>
<th>Creative</th>
<th>Healthcare</th>
<th>Food and Agriculture</th>
<th>Hospitality and Tourism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Regional Product</td>
<td>$917,000,000</td>
<td>$398,000,000</td>
<td>$702,000,000</td>
<td>$416,000,000</td>
<td>$394,000,000</td>
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<tr>
<td>Total Jobs including self-employed</td>
<td>6,450</td>
<td>5,450</td>
<td>11,417</td>
<td>8,947</td>
<td>6,329</td>
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<tr>
<td>Job Growth 2010-2017 -- Berkshire County</td>
<td>3.1%</td>
<td>9.5%</td>
<td>3.0%</td>
<td>4.0%</td>
<td>6.3%</td>
</tr>
<tr>
<td>Job Growth 2010-2017 -- Massachusetts</td>
<td>3.4%</td>
<td>18.1%</td>
<td>14.6%</td>
<td>16.1%</td>
<td>11.7%</td>
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<tr>
<td>Job Growth 2010-2017 -- United States</td>
<td>8.8%</td>
<td>14.2%</td>
<td>14.2%</td>
<td>16.2%</td>
<td>8.7%</td>
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<tr>
<td>Industry Concentration</td>
<td>0.98</td>
<td>1.62</td>
<td>1.50</td>
<td>0.92</td>
<td>1.29</td>
</tr>
<tr>
<td>Average Wage &amp; Salary</td>
<td>$72,477</td>
<td>$30,249</td>
<td>$52,877</td>
<td>$22,184</td>
<td>$27,735</td>
</tr>
<tr>
<td>Jobs Multiplier</td>
<td>4.8</td>
<td>1.6</td>
<td>1.7</td>
<td>1.7</td>
<td>1.4</td>
</tr>
</tbody>
</table>
**History of the Berkshire Innovation Center**

- The Massachusetts Life Sciences Act of 2008 provided:
  - Funds for the “Design, construction and development for life science incubator building in the William Stanley Business Park in Pittsfield”
  - The Massachusetts Life Science Center (MLSC)
    - Requested the City of Pittsfield conduct a feasibility study and develop a business plan for the future building
    - In 2013 an RFP was issued by Pittsfield
      - New England Expansion Strategic was awarded the contract for the Feasibility Study and the creation of business plan.
Feasibility Study Guideline

-New England Expansion Strategies (NEES) presented to the MLSC Board of Directors

• MLSC set strict guidelines for the study
  1. Direct Engagement with Stakeholders
  2. Outreach to New York Organizations
  3. Right Fit for the Region - The Berkshires is a unique region of Massachusetts (i.e. what works in Cambridge-Boston, Worcester, Lowell will not necessarily work in the Berkshires)
  4. Definition of Incubator - The definition should be in the broad sense of the word
  5. Target Industries
  6. Phased Approach - The Feasibility Study and Business Plan will utilize a phased approach.
Feasibility Study Guideline

- Phase One and Phase Two Guidelines were set by the MLSC
  - The Phase One Study
    - A Feasibility Study and a Conceptual Business Plan.
  - Phase Two
    - Detailed Business Plan
    - Operating Model
    - Facility Plan
    - Financial Pro Forma's
    - Formalized commitments and partnerships
      - Letters of Intent
      - MOU's
Berkshire Innovation Center
Pittsfield, MA

Extensive Industry & Stakeholder Participation

85 External Organizations
- Includes 40 from Berkshire County
- Additional 22 from Western MA, NY

30 Private Sector Companies
- Includes 26 from Berkshire County
- 6 Life Sciences & 20 Advanced Manufacturing

- Industry - 30
- Econ Dev & Gov - 13
- Higher Education - 12
- Incubators - 8
- Other - 7
- Hospitals/Med Res - 6
- Trade Groups - 5
- Venture Capital - 4
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Business Plan Addresses Unique Regional Challenges

- Berkshires Region
- Nascent Life Science Industry
- Remote Location on NY Border
- Berkshire County Lacks VC’s and Research Institutions
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Pittsfield, MA

BIC Strategic Answer – Build on Regional Strengths

Secondary Voc-Tech Education

Berkshire Community College and MCLA

Excellent Quality of Life

Low Cost to Live & Work

“Research Donut “
8 Major Research Institutions within One Hour Radius of Pittsfield (MA & NY)

Manufacturing Know-How and Leaders – GD, SABIC, Crane

Life Science Supply Chain
30+ Companies in Berkshire County
The Innovation Equation

"And, thus, we are all looking for the magic formula. Well, here you go: Creativity + Iterative Development = Innovation"

-James Dyson, Founder, Dyson
I. The Berkshire Innovation Center will Provide a Catalyst to Enable and Accelerate Innovation and Growth of Existing Companies in the Berkshire Region

A. Primarily focus: Small to Medium Sized Manufacturing Companies (SME’s)
   1. In Life Sciences and Life Sciences Supply Chain
   2. Advanced Manufacturing & Technology

B. Objective
   1. Spur Economic Growth, Jobs, and Investment in the Region.
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Primary
Existing Small to Medium Size Manufacturers (SME’s) in Life Sciences, Life Sciences Supply Chain (Materials, Plastics), Advanced Manufacturing & Technology
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Delivering Advanced Capabilities to BIC Member Cos.

Advanced R&D Equipment

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Delivering Advanced Capabilities to BIC Member Cos.

- Industry Tailored Training
- Advanced R&D Equipment

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Delivering Advanced Capabilities to BIC Members

- Advanced R&D Equipment
- Industry Tailored Training
- State-of-Art Facilities

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Delivering Advanced Capabilities to BIC Member

- Advanced R&D Equipment
- Research Collaboration Partners
- Industry Tailored Training
- State-of-Art Facilities
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Pittsfield, MA

Delivering Advanced Capabilities to BIC Members

- Advanced R&D Equipment
- Collaboration w/ Research Partners
- Industry Tailored Training
- State-of-Art Facilities
- Student Internship/Apprentice Program
Berkshire Innovation Center
Pittsfield, MA

Delivering Advanced Capabilities to BIC Member Cos.

- Advanced R&D Equipment
- Collaboration w/ Research Partners
- Business & Technical Expertise & Support
- Student Internship/Apprentice Program
- State-of-Art Facilities
- Industry Tailored Training
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Pittsfield, MA

Equipment Plan

$2 Million Budget

- Precision Measurement
- Interactive Video-conferencing
- Rapid Prototyping 3D Printing
- Automation & Robotics Training
- Design & Reverse Engineering
- Precision Analysis & Microscopy
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Pittsfield, MA

BIC Facility
Berkshire Innovation Center
Pittsfield, MA
Berkshire Innovation Center
Pittsfield, MA
Key Strategic Partnerships for the BIC

- **Manufacturing USA** - Become the Regional Focal Point for the 14 Institutes in the National Network for Manufacturing Innovation
- **Partnership with the Massachusetts Green High Performance Computing Center**
- **Strategic Partnerships** i.e Valley Venture Mentors, Tech Spring, CCAC, and UMASS Advanced Manufacturing Center
Unique Opportunities in the Berkshires

• The BIC will create unique, Industry Specific Programming to attract out of region interest to the BIC-i.e. VR/AR Surgical Suite
• Launch of the BIC’s RFP Program Network
  • Receive RFP’s/RFQ’s
  • Coordinate response to win the business for member companies
• The BIC will leverage the existing cultural assets (Tanglewood, Jacob’s Pillow, etc) to offer opportunity for corporate meetings
• BIC will host Berkshire Focused Networking Events
• Alignment with the Berkshire Blueprint
Unique Opportunities in the Berkshires

- Transitioning legacy manufacturing base
  - From Plastics and Paper Manufacturers transitioning to builders of new products like Medical Devices
- Injection Molders to World Class Mold Makers
  - Key opportunity to accelerate the “on shoring” movement
- Three special effects companies located in the Berkshires
- Developing software, coding, and testing cluster
  - General Dynamics-Mission Systems
  - NTS, Intertek
Q1-BIC Activities/Updates

• Identified as a Cluster Asset in the Healthcare and Advanced Manufacturing Cluster in the Berkshire Blueprint 2.0
  • Began meeting bi-monthly with 1Berkshire to discuss how to partner together to achieve the cluster goals
• BIC Website Update and Launch
• PEDA Design Review Board
• Berkshire Robotics Challenge
• Co-Sponsor Berkshire Innovation Night
• Lever Business Challenge
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Pittsfield, MA

Q1-BIC Activities/Updates

• Berkshire Community College Faculty Search Committee
• Partnered with the Mass Green High Performance Computing Center and the Northeast Cyber Team Initiative to offer a Pilot Program for BIC Members
• SBA and EDM-BIC Architect Update
• April 24th-Invited Panelist on the “Powering the Mass Innovation Ecosystem” in Boston.
• Launched the BIC RFP Pilot Program
Q2-Next Steps-Upcoming Activities

- April 30th - Guest Speaker ASQ Berkshire Quarterly Meeting - "Innovation in the Berkshires"
- On June 4th - Host a visit from Ira Moskowitz, the Director of Advanced Manufacturing Program for the Mass Tech Collaborative
- Began discussions with Pharmaceutical Non-profit to offer Advance Life Science Trainings at the BIC
- Continued discussions with a BIC Member and the State on how we can support their future hiring plans
- BIC AV and IT RFP
- BIC Software RFP - Equipment and Room Rental Program
- Health Insurance Market Study
What Role does Engineering for the BIC and Berkshire County

- Engineering and Creative Design is the Foundation of Innovation
- Productivity without Creative Design quality is meaningless
- With the increased decentralization of manufacturing, Engineering is PARAMOUNT
- NEXT FLEX
  Flexible Hybrid Electronics-Manufacturing Institutes U.S.A.
- BIC FELLOWSHIP PROGRAM
BACKUP SLIDES
Berkshire Innovation Center
Pittsfield, MA

BIC Balanced Scorecard

VISION: To support existing small to medium sized manufacturers in the Life Sciences and Advanced Manufacturing Industries

FINANCIAL: Financial Performance: Increase Membership Revenue, Increase Sponsorship Revenue

INTERNAL BUSINESS PROCESSES: How smooth is your business running? Establish realistic budgets, Document policies and procedures

CUSTOMER: Who buys your product or service? Short and Long Term Communication Strategy

LEARNING AND GROWTH: Corporate Culture: Establish relationships with Key Partners, Establish strong Board of Directors
VISION: To support existing small to medium sized manufacturers in the Life Sciences and Advanced Manufacturing Industries

FINANCIAL: Financial Performance: Increase Revenue, # of New Products, Project Profitability

INTERNAL BUSINESS PROCESSES: How smooth is your business running? Internal Training, Use of BIC Equipment and Classrooms

CUSTOMER: Who buys your product or service? # of new accounts, new products, new services

LEARNING AND GROWTH: Corporate Culture: # of seminars, speaker events, new classes attended