Virtual Roundtable: **Building the Westchester Biotech Cluster**  
**Innovation Cluster Development in a Dynamic Environment**  
**November 14, 2018**

Cluster building is a multi-tiered, multi-year initiative, requiring the combined resources and collaborative efforts of numerous individuals and organizations. However, the resulting supportive life science infrastructure lays an enduring foundation for the future.

Steve Wray, a leader in innovation cluster development, will share four keys to developing a healthy innovation cluster. His insights on the meaningful growth of a life science ecosystem have developed through work in Philadelphia and the Commonwealth of Pennsylvania, drawing on experiences from Boston, Baltimore, and Silicon Valley.

**Steve Wray**  
VP and Director, Regional Economics and Labor  
EConsult Solutions

**Discussant:**  
**Philippe Salphati, Pharm.D.**  
President & CEO, AYA Consulting  
Member, Tefen Group
Welcome!

Westchester Biotech Project
333 Mamaroneck Avenue, #340
White Plains, New York 10605

914-719-2226
www.WestchesterBiotechProject.org

On Twitter we're @WestchesterBio
Westchester Biotech Project

-a borderless initiative mapping the future for regional and international collaboration

Co-Founders:

Michael Welling, Chair
Partner, Meridian Risk Management

Joanne Gere, Executive Director
Thank You to our Community Partners, Alliance Partners, and Participants!
Cluster Development in a Dynamic Environment

- Westchester Biotech Project
- November 14, 2018
- Steve Wray
- Econsult Solutions, Inc.
Overview of Presentation

Overview of today’s discussion

• Overview of cluster development
• The biotech/biopharma cluster
• 4 keys to cluster development
• Keys for Westchester as it develops its cluster
• Q&A

About Steve Wray and ESI

• Econsult Solutions – Economic research firm based in Philadelphia.
  – Economics
  – Policy
  – Strategy
• Steve Wray – VP and Director
  – State and local economic development, economic thought leadership
  – Former Executive Director of Economy League of Greater Philadelphia
  – Focus on innovation, civic strategy, regional competitiveness

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Overview of Cluster Development

- Tradable clusters are those that concentrate in geographic regions but sell their products or services across regions or around the world.

- Local clusters sell their goods or services primarily to local companies or consumers, and their presence in a region is proportional to the size of their local region.
Why do Clusters Matter?

- Tradable clusters help to define and power a region’s economy
  - History
  - Defining companies
  - Concentration of resources
  - Talent development and attraction
- Tradable and local clusters intersect in the regional economy
  - Place of business
  - Home for employees
Biotech and Biopharma Clusters

- Tradable and local clusters combine
- Mix of biological products, biopharma products, information technology, physical products, clinical trials, and research products and businesses
- Highly specialized business services, risk capital and research service providers
- Higher education and teaching hospitals are core components
- Cluster support organizations provide glue and connections

The Boston Biopharmaceuticals Cluster

- Teaching & Specialized Hospitals
- Biological Products
- Biopharma Products
- Research Organizations
- Educational Institutions
- Health & Beauty Products
- Surgical Instruments & Suppliers
- Medical Equipment
- Dental Instruments & Suppliers
- Ophthalmic Goods
- Diagnostic Substances
- Containers
- Information Technology & Analytical Instruments Cluster
- Cluster Organizations
  - MassMedic, MassBio, others
- Specialized Business Services
  - Banking, Accounting, Legal
- Specialized Risk Capital
  - VC Firms, Angel Networks
- Specialized Research Service Providers
  - Laboratory, Clinical Testing
- Harvard, MIT, Tufts, Boston University, UMass

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4 Keys to Biotech Cluster Development
Keys to Biotech Cluster Development

Research Assets
- Presence of advanced research institutions
- Access to talent

Innovation Culture
- Start-up culture
- Entrepreneurial support resources
Keys to Biotech Cluster Development

Place
• Research and lab space
• Dense urban setting
• Transportation infrastructure
• Amenity rich environment

Collaboration
• Collaborative mechanisms
• Partnerships with local governments
Innovation Districts and Clusters

- Cluster activity happens in places
- Innovation districts are new focus
- Key factors
  - Research Assets
  - Innovation Culture
  - Collaboration
  - Place
  - Cost

### Innovation District Characteristic

<table>
<thead>
<tr>
<th>Innovation District Characteristic</th>
<th>University City</th>
<th>Kendall Square</th>
<th>Oakland</th>
<th>South Lake Union</th>
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<td><strong>Research Assets</strong></td>
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<td>(1) Presence of advanced research institutions</td>
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<td><strong>Innovation Culture</strong></td>
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<td>(3) Start-up culture</td>
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<td>(4) Entrepreneurial support resources</td>
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<td>(5) Collaborative mechanisms</td>
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<td>(6) Partnership with local government</td>
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<td><strong>Place</strong></td>
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<td>(7) Dense urban setting</td>
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<td>(8) Transportation infrastructure</td>
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<td>(9) Amenity-rich environment</td>
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<td>Cost of labor</td>
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Westchester County – Where do you stand?

Advantages
• Geography
• Talent base
• Research assets
• Quality of life
• Transportation

Challenges
• Geographic competition
• Late to the game
• Access to capital
• Depth of opportunity
• Urban environment
Westchester County – Where do you stand?

U.S. cluster rankings

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<th>Rank</th>
<th>Cluster</th>
<th>Weighted score</th>
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<tr>
<td>1</td>
<td>Greater Boston Area</td>
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<td>2</td>
<td>San Francisco Bay Area</td>
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<td>3</td>
<td>San Diego Metro Area</td>
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<td>Raleigh-Durham Metro Area</td>
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<td>Suburban Maryland/Metro DC</td>
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<tr>
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<td>Seattle Metro Area</td>
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<td>New Jersey</td>
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<td>Westchester County</td>
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<td>Denver Metro Area</td>
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<td>Chicago Metro Area</td>
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<td>New York City</td>
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<td>Minneapolis - St. Paul Metro Area</td>
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<td>Long Island</td>
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Life sciences employment concentration:
- Weight: 20.0%
- Measured as the percent of industry employment against total metro private employment. (BLS, 2016)

Life sciences venture capital funding:
- Weight: 15.0%
- Funding from 2017 (CB Insights)

Total lab supply:
- Weight: 15.0%

Life sciences employment growth:
- Weight: 10.0%

Life sciences establishments concentration:
- Weight: 10.0%
- Measured as the percent of industry establishments against total metro private establishments. (BLS, 2016)

Life sciences National Institutes of Health funding:
- Weight: 10.0%

National Institutes of Health, 2017

Market occupancy rate:
- Weight: 10.0%

Average asking rent (NNN):
- Weight: 10.0%
Final Thoughts

- Steve Wray
- wray@econsultsolutions.com