# The importance of clusters to drive competition, innovation and prosperity

U.S. Cluster Mapping Project Briefing and Examples, Strategies, and Best Practices

EU-US Health/e-Health Workshop

Friday, June 20, 2014 - Boston, MA, USA

CLUSTER MAPPING

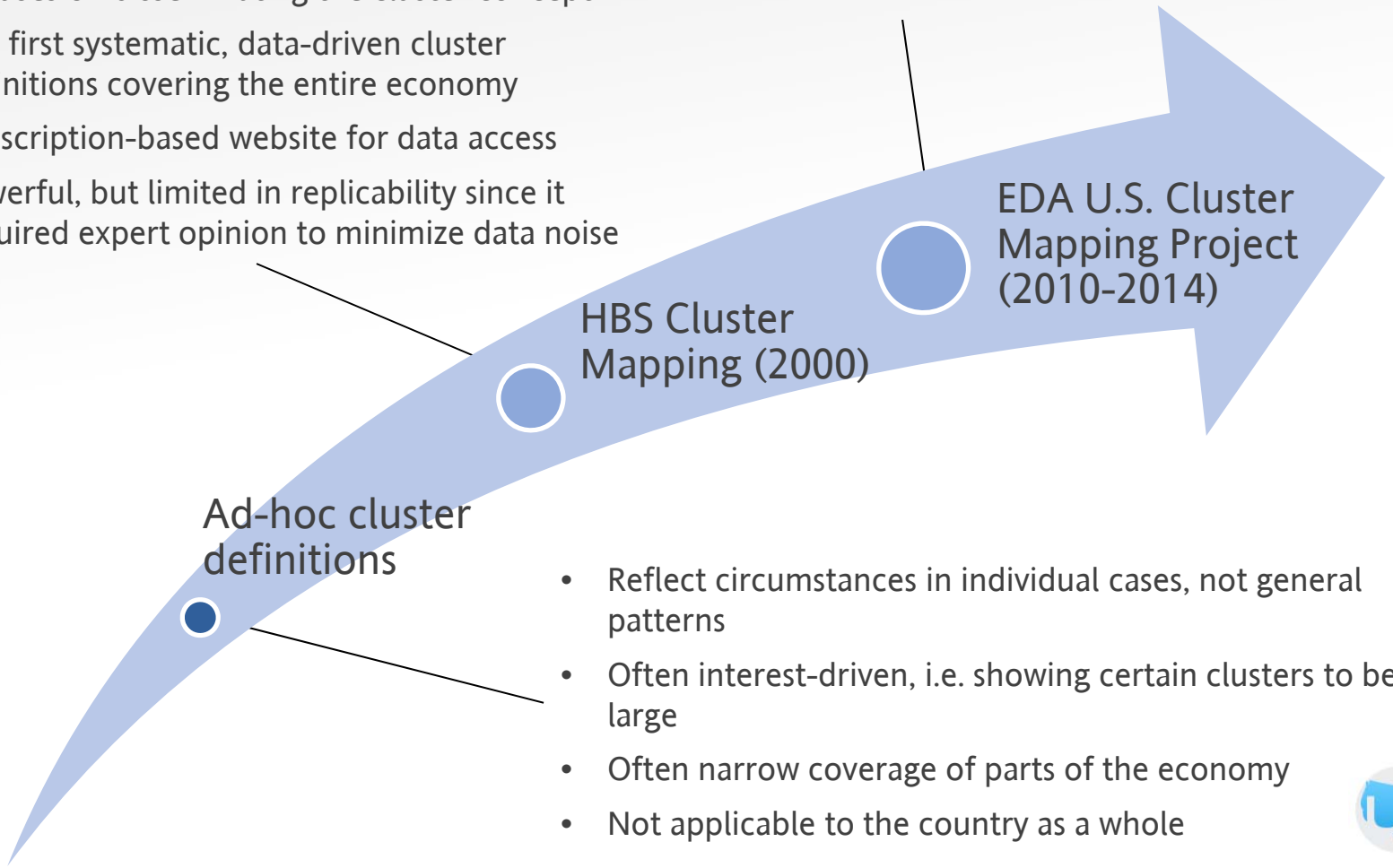
HARVARD | BUSINESS | SCHOOL

Institute for Strategy & Competitiveness

# What the presentation will cover

- Facilitate the exchange of best practices in cluster mapping and the design of cluster data portals
- Provide a platform for discussing the use of cluster data in economic policy design and practice
- Result in a small number of targeted joint international initiatives in cluster mapping and next steps

# Evolution of Cluster Definitions




- Reflect circumstances in individual cases, not general patterns
- Often interest-driven, i.e. showing certain clusters to be large
- Often narrow coverage of parts of the economy
- Not applicable to the country as a whole

- Focuses on disseminating the cluster concept
- The first systematic, data-driven cluster definitions covering the entire economy
- Subscription-based website for data access
- Powerful, but limited in replicability since it required expert opinion to minimize data noise

- Retains systematic approach and comprehensiveness
- Revisits the underlying statistical methods and uses the latest data to reflect today's economy
- Open data accessible to the public on the website
- Reduces the need for expert opinion to classify clusters

# What are Clusters?

- A cluster is a regional concentration of related industries connected through the various types of linkages and spillovers that span across industries.
    - Every regional economy has its own distinct profile of clusters.
- Researchers from Harvard Business School, MIT Sloan, and Temple School of Business generated cluster definitions based on a novel algorithm that allows for the systematic generation and comparison of clusters across the U.S. (Delgado, Porter and Stern, 2013)
- Using U.S. Census Bureau County Business Pattern (CBP) data, they measured economic activity at the region-industry and region-cluster level
    - Cluster categories are **groups of related industries based on co-location patterns across regions, input-output links and skill links**
        - Incorporate 778 traded industries (6-digit NAICS)
            - Service and manufacturing industries selling products/services to other regions and countries
    - Grouped into 51 traded clusters for each EA and 16 local clusters
    - Focused on a dataset that spans 2003-2011 (currently updating with 2012)
    - Clusters can be mapped into any regional unit, including 177 mutually exclusive Economic Areas (EAs; U.S. Bureau of Economic Analysis)

# Example of Cluster Category: Biopharmaceuticals

Establishments in this cluster produce complex chemical and biological substances used in medications, vaccines, diagnostic tests, and similar medical applications.

**Summary Information**

| | |
|---|---|
| *Number of Industries* | 4 |
| *$WCR_c$ (Avg(LC-emp, LC-est, IO, Occ))* | 3.367 |

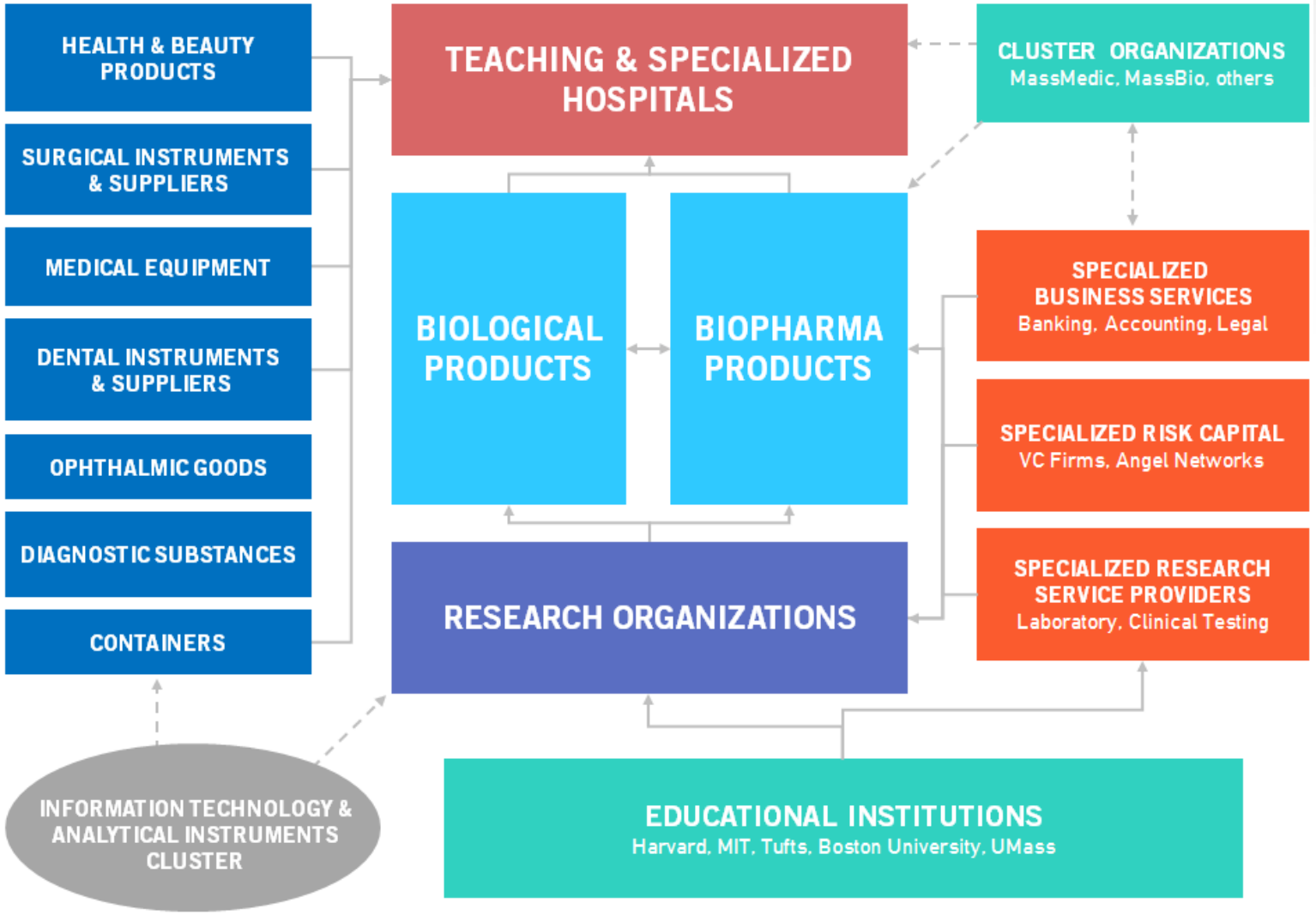
**Top-3 Related Clusters**

| *Cluster Name* | *Cluster Code* |
|---|---|
| Distribution and Electronic Commerce | 9 |
| Education and Knowledge Creation | 12 |
| Downstream Chemical Products | 10 |

| NAICS | NAICS Name | Subcategory Name | Within Cluster Relatedness$_{ic}$ | |
|---|---|---|---|---|
| | | | Rank (1 = best) | Score |
| 325411 | Medicinal and Botanical Manufacturing | Biopharmaceutical Products | 1 | 3.818 |
| 325412 | Pharmaceutical Preparation Manufacturing | Biopharmaceutical Products | 1 | 4.454 |
| 325414 | Biological Product (except Diagnostic) Manufacturing | Biological Products | 1 | 3.071 |
| 325413 | In-Vitro Diagnostic Substance Manufacturing | Diagnostic Substances | 1 | 1.954 |

Source: "Defining Clusters of Related Industries," Delgado, Porter, Stern, 2013

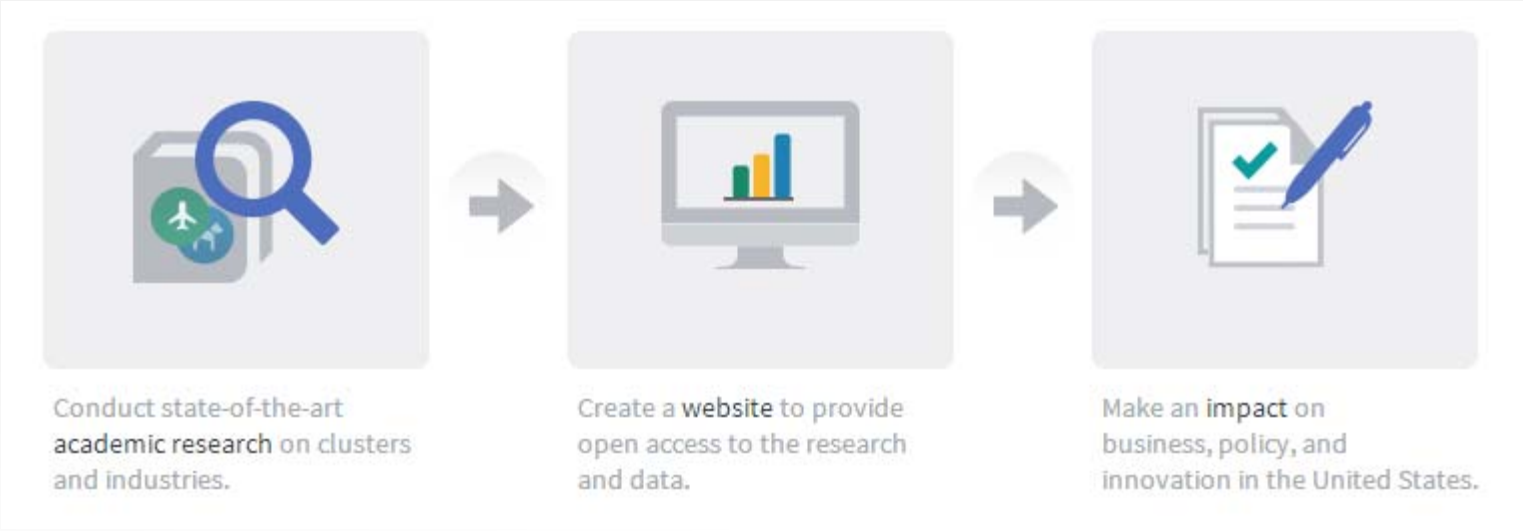
# The Boston Biopharmaceuticals Cluster



# Cluster Presence and Economic Outcomes
# The Academic Evidence

| Prosperity | Entrepreneurship | Structural Change |
|---|---|---|
| Positive correlation between share of regional employment in strong clusters (breadth of clusters; related cluster strength) and:<br>• Wages<br>• Productivity<br>• Job growth/resilience<br>• Patenting | Positive correlation between share of regional employment in strong clusters (strength of related cluster) and:<br>• New business formation in new/existing industries<br>• Survival of new firms<br>• Job growth in new firms | Path of structural change (emergence of new clusters) in regional economies is driven by legacy of composition (portfolio of existing clusters) |
| *e.g. Porter (2003), Greenstone (2008). Delgado/Porter/Stern (2012), Ketels/Protsiv (2013), Aharonson et al (2013)* | *e.g., Delgado/Porter/Stern (2011), Lindqvist/ Wennerberg (2008)* | *e.g., Neffke et al (2009); Boschma et al. (2013)* |

# About the Project




- National economic initiative based at Harvard Business School and sponsored by the U.S. Department of Commerce's Economic Development Administration (EDA).
- Through a highly optimized, modern website, the project provides interactive access to:
  - Actionable cluster data and regional statistics covering the entire U.S. economy.
  - A community network for users to contribute resources and news about economic development, policy and innovation; identify partners; and share and discuss their best practices and activities.

# U.S. Secretary of Commerce Soft Launches Platform, and latest analytics


**Audience Overview** May 17, 2014 - Jun 16, 2014

| | Country / Territory | Sessions | % Sessions |
|---|---|---|---|
| 1. | United States | 3,646 | 76.69% |
| 2. | Canada | 109 | 2.29% |
| 3. | Mexico | 58 | 1.22% |
| 4. | United Kingdom | 55 | 1.16% |
| 5. | Spain | 50 | 1.05% |
| 6. | South Korea | 47 | 0.99% |
| 7. | India | 44 | 0.93% |
| 8. | Russia | 42 | 0.88% |
| 9. | France | 38 | 0.80% |
| 10. | Germany | 35 | 0.74% |

# New Carolina User Story (South Carolina)

## Laura McKinney, Executive Director of New Carolina

USER NEEDS

- Laura is responsible for developing a cluster strategy to strengthen the economic competitiveness of South Carolina.
- In particular, she is interested in how clusters are steering the state's economy and having a measurable impact on its success.

WHAT THE SITE OFERS

- Together with New Carolina's executive committee and task forces, Laura has been using the U.S. Cluster Mapping website as a one-stop source for data to identify South Carolina's most competitive industries for use in developing a statewide strategic framework for economic growth in South Carolina.
- The website provides her with the metrics to benchmark the outcomes of SC clusters against those of clusters in other states.

OUTCOMES

- Laura and her team are now better positioned to take the next step in producing a framework that will increase the competitive position of South Carolina in the national economy.

# International Collaboration

- **Mexico and Canada**
  - Partnering with the U.S. Department of Commerce and the Regional Innovation Cluster Subcommittee (iCluster) of the Mexico-U.S. Entrepreneurship and Innovation Council (MUSEIC) to:
    - Provide technical assistance to the Mexican government on recommendations for cluster-based economic development.
    - Strategize how to align Mexican cluster data with that of the U.S. Cluster Mapping Project.
  - Collaborating with the Martin Prosperity Institute at the University of Toronto, Rotman School of Management and the Institute for Competitiveness & Prosperity to include Canadian cluster initiatives in the new U.S. Cluster Mapping website.
  - May lead to a future North America Cluster Map.
- **European Union**
  - Cluster mapping partner in EU Cluster Observatory (www.clusterobservatory.eu).
  - The team is advising the U.S. federal government on US-EU cluster collaboration.
  - Planning international convening in fall 2014.

# Current 2014 Timeline

| TIMEFRAME | MAIN PROJECT ACTIVITY |
|---|---|
| June 2014 | • Public launch of newly designed Beta website (www.ClusterMapping.us)<br>• Continued website development and enhancement of features<br>• Kick-off event for the website in Washington, DC<br>• Outreach to potential and targeted users of the website |
| Summer– Fall 2014 | • Continued website development and enhancement of features<br>• Continued outreach to potential and targeted users of the website<br>• Regional roadshow to promote the website and project<br>  • Relevant events, conferences, roundtables, and meetings across the U.S. |

# Contact Information

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VISIT www.clustermapping.us