Measuring Your Innovation Economy

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C2ER Webinar Series
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Topics Covered Today

- What is the Innovation Economy?
  - Is it Different?
  - If so, How?
- Schools of Thought/Approaches
- Key Measures
  - Innovation Inputs
  - Workforce Quality
  - Business Outcomes
  - Technology Outcomes
- Existing Research Sources and Tools

- More active potential role for government
  - Institutions shape growth patterns
    - Both place and history matter
- Economies evolve over time
- Change occurs via a process of creative destruction (Schumpeter)
- Who are the filters and deployers of knowledge?
  - Entrepreneurs!
Innovation Economics: Key Principles

- Innovation Drives Economic Growth
- Productive Efficiency and Adaptive Efficiency as Key Drivers
- Spurring Evolving and Learning Institutions is Key (e.g. clusters, businesses, etc.)
- The new Knowledge Economy trends toward change, not equilibrium
- Public–Private Partnerships are critical policy lever
Similar Principles/Differing Lens

- **Technology Lens:** IT as key driver of economic growth (ITIF)
- **Entrepreneur Lens:** Gazelles/Entrepreneurs as “Knowledge Filter” (Kauffman Foundation)
- **Talent Lens:** The Place with the Most Talent Wins (Richard Florida)
- **University Lens:** Knowledge Centers Drive Growth
- **Industry/Cluster Lens:** (Michael Porter et al.)
- **Local/Regional Lens:** Strong regions beget innovation (Joel Kotkin/Milken Institute)
Some Sample Products

- State New Economy Index (www.itif.org)
- Milken State Technology and Science Index/Best Performing Cities Report (www.milkeninstitute.org)
- Beacon Hill Institute Competitiveness Report (www.beaconhill.org)
- CyberStates/Cybercities (www.techamerica.org)
Shared Concepts

- An attitudinal/cultural phenomenon
- Pervasive effects on all sectors
- Idea creation and commercialization as key drivers
- Results in wealth creation (and loss)
- But, stability is fleeting
  - Churn is Good!!
Different Lens, Similar Metrics

Key Metrics Categories for Tracking Innovation

- Innovation Inputs
- Workforce Quality
- Business Outcomes
- Technology Outcomes
Innovation Inputs: Key Measures

- Most Frequently Used Measures
- Heavy Focus on Dollars Invested
  - e.g. NSF Research Expenditures
- Key Metrics:
  - R&D as percent of GSP
  - Private R&D Activity
    - Accounts for 82% of all US research spending
  - Federal research investments
    - Small Business Innovation Research (SBIR)
Where to Find Innovation Inputs Data

- National Science Foundation
  - Science & Eng. Indicators

- R&D Dashboard
  - Tracks NSF and NIH spending

- SBIR
“Quality” is in the eye of the beholder

**Key Metrics**
- Educational Attainment
- Science & Engineering Degree production
- S & E Workers
- “Technical workers”
- High-tech employment—manufacturing and/or services
  - Can also focus on key clusters
Where to Find Workforce Quality Data

- National Center for Education Statistics
  - [www.nces.ed.gov](http://www.nces.ed.gov)
- American Community Survey ([www.census.gov](http://www.census.gov))
- Quarterly Census of Employment & Wages (BLS)
- Clusters at [www.statsamerica.org](http://www.statsamerica.org)
- Can also track test scores—State tests, NAEP, etc.
Cluster Geography Data

Innovation Data for Custom Regions

Select the counties you want in your region, either by state, metro, micro of EDD. Alternatively, you can use the map to zoom into an area and then switch to select mode to choose the counties individually or by drawing an area.

1. Select Data:
   - Industry Clusters
   - Overview
   - All Industries

2. Select Counties: (Go to Basic Version)
   - Select by: County, District, Metro, or State
   - Region Group: Economic Development Districts
   - Region: AK Kenai Peninsula EDD
   - Add Counties

3. Select a time period: Not all data are available for all time periods
   - Year: Current

You are in NAVIGATE Mode (Move Map, Zoom). Click to switch to SELECT Mode.
# Cluster Analysis Report

<table>
<thead>
<tr>
<th>Geography Name</th>
<th>Year</th>
<th>Description</th>
<th>QCEW Cluster - Establishments</th>
<th>Industry Cluster Establishment LQ</th>
<th>QCEW Cluster - Employment</th>
<th>Industry Cluster Employment LQ</th>
<th>QCEW Cluster - Wages</th>
<th>Industry Cluster Annual Wages LQ</th>
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<tr>
<td>Custom Region</td>
<td>2008</td>
<td>Total All Industries</td>
<td>8,208</td>
<td>1.00</td>
<td>148,437</td>
<td>1.00</td>
<td>$6,935,702,995</td>
<td>1.00</td>
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<td>Custom Region</td>
<td>2008</td>
<td>Advanced Materials</td>
<td>141</td>
<td>1.10</td>
<td>3,225</td>
<td>0.56</td>
<td>$264,848,691</td>
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<td>Agribusiness, Food Processing &amp; Technology</td>
<td>207</td>
<td>1.58</td>
<td>1,558</td>
<td>0.45</td>
<td>$44,570,845</td>
<td>0.34</td>
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<td>Custom Region</td>
<td>2008</td>
<td>Apparel &amp; Textiles</td>
<td>37</td>
<td>0.50</td>
<td>92</td>
<td>0.07</td>
<td>$2,373,789</td>
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<td>Arts, Entertainment, Recreation &amp; Visitor Industries</td>
<td>223</td>
<td>0.93</td>
<td>1,385</td>
<td>0.24</td>
<td>$23,151,223</td>
<td>0.11</td>
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<td>2008</td>
<td>Biomedical/Biotechnical (Life Sciences)</td>
<td>536</td>
<td>2.68</td>
<td>5,309</td>
<td>1.06</td>
<td>$254,808,112</td>
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<td>Business &amp; Financial Services</td>
<td>1,085</td>
<td>0.85</td>
<td>4,308</td>
<td>0.33</td>
<td>$213,521,130</td>
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<td>2008</td>
<td>Chemicals &amp; Chemical Based Products</td>
<td>97</td>
<td>1.52</td>
<td>4,605</td>
<td>1.85</td>
<td>$410,855,577</td>
<td>2.71</td>
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<td>Custom Region</td>
<td>2008</td>
<td>Defense &amp; Security</td>
<td>250</td>
<td>0.02</td>
<td>6,448</td>
<td>0.88</td>
<td>$295,960,624</td>
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<td>Custom Region</td>
<td>2008</td>
<td>Education &amp; Knowledge Creation</td>
<td>84</td>
<td>0.47</td>
<td>368</td>
<td>0.03</td>
<td>$10,530,824</td>
<td>0.02</td>
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<td>2008</td>
<td>Energy (Fossil &amp; Renewable)</td>
<td>1,072</td>
<td>1.98</td>
<td>18,467</td>
<td>2.08</td>
<td>$1,134,348,988</td>
<td>1.89</td>
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Business Outcomes

- Toughest category to track due to incomplete data and delays in access
- Establishment or Firm is the Unit of Analysis
- Several key categories:
  - Business Starts/Failures
  - Business Growth
  - Changes in Business Activity
    - New Investments
    - New Innovations
    - Entry into New Markets/Exports
  - Key Business Milestones (e.g. INC 500/Fast 50)
- Some data may require surveys/interviews
Where to Find Business Outcomes Data

- **Business Starts**
  - Kauffman Index of Entrepreneurial Activity ([http://sites.kauffman.org/kauffmanindex/index.cfm](http://sites.kauffman.org/kauffmanindex/index.cfm))
  - County Business Patterns ([http://www.census.gov/econ/cbp/index.html](http://www.census.gov/econ/cbp/index.html))

- **Business Growth**
  - Youreconomy.org
  - Census SUSB ([http://www.census.gov/econ/susb/](http://www.census.gov/econ/susb/))

- **Business Milestones**
  - INC 500/5000: [www.inc.com](http://www.inc.com)
  - Venture Capital: [www.nvca.org](http://www.nvca.org)
Are we focused on real job creators?

Overview: United States 1993-2008

Growth shows how establishments and jobs are distributed according to YE employment sectors, stages, and follows openings, closings, expansions, contractions, move-ins and move-outs (factors) of establishments — showing how this activity affects job gains and losses. After you have selected a state, you will be able to view MSA and county growth information.

- YE 2008 data shows a pattern of increased establishments and jobs for smaller (self-employed and Stage 1) categories through the time-series.
- The United States totals are comprised of the 50 states and do not include the Virgin Islands nor Puerto Rico.

50% of startups fail within five years, but 80% of jobs created by startups remain.
Seeking outcomes that represent commercialization process

Proceed along a continuum from:
- Disclosures
- Patents Applications/Awards
- Licenses/Licensing Income
- Firm Spin-offs
- Employment in Spin-off Firms

Can also track proposal “hit rates”
- E.G., SBIR, NSF, etc.
Where to Find Technology Commercialization Data?

- Association of University Technology Managers (www.autm.net)
  - Best source on major research universities
  - But, data isn’t free

- Patents
  - US Patent and Trademark Office
    - Track on Per Capita Basis
    - [http://www.uspto.gov/web/offices/ac/ido/oeip/taf/reports.htm](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/reports.htm)
  - Some data also available from AUTM survey
Some Good Local/State Models and Sources

- Michigan Entrepreneurial Scorecard
  - www.sbam.org
- Maine Innovation Index/R&D Evaluation
  - www.maineinnovation.com
- Babson Entrepreneurship Monitor
  - http://www3.babson.edu/ESHIP/research-publications/BEM.cfm
- Northeast Ohio Economic Dashboard
  - http://www.futurefundneo.org/page10474.cfm
- Washington Workforce Explorer
  - http://www.workforceexplorer.com/
- The Index of Silicon Valley
  - (www.jointventure.org)
Many Challenges in Finding Needed Data

- Timeliness of data is questionable
  - Esp. with Federal Sources
- Difficult to work at non-state level
- Especially for rural regions
- Data comparability is key
- Business data hard to access
  - E.g. firm growth rates over time

Many Challenges in Engaging Stakeholders and “Selling” Your Message

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Cannot treat benchmarking as a separate, “special project”
   ◦ It must become embedded in the core business, helping drive the action agenda.

A good study won’t sell itself: Perfect Your Elevator Pitch!

Key Questions:
   ◦ What is the story? Your “story lines?”
   ◦ What is your “theory of change?”
   ◦ Why should they care?
Questions for Discussion

- What resources, including money and personnel, are needed to do this right?
- What organizations make good partners for benchmarking?
- What data sources are most effective?
- Are there any “tricks to the trade?”
Some Background Reading

Books

- Steven Johnson, *Where Good Ideas Come From*. (Riverhead, 2010).

Websites

- Business Innovation Factory (www.businessinnovationfactory.com)
- Innovation Economics (www.innovationeconomics.org)
- NESTA (UK) (www.nesta.org.uk)
Thank You!

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