Innovation in Tech Transfer

- **Traditional**
  - University tech transfer office
  - Incubators

- **Innovative**
  - Clusters
  - Rapid Prototyping
  - Tech Scouting
  - Portals
Globalization of Technology

Investment in R&D is a lead indicator of a nations intent to compete globally

R&D investment over the past decade:

- China: doubled from .06% to 1.2%
  - Israel: increased from 2.7% to 4.7%
  - Finland: 3.5%
  - Germany: 3.0% by 2010

Gregory Tassey, The Technology Imperative, 2007
How Do We Compare on the International Level?

U.S. Federal R&D Support as Percentage of GDP (1953-2006)
Reduced from 2% to .75%
Globalization of Technology

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  - Finland: 3.5%
  - Germany: 3.0% by 2010
  - United States: 2% to .75% (1953-2006)

Gregory Tassey, The Technology Imperative, 2007
Asia’s “World Class” Campuses

Biopolis – Singapore – 12 m sf

New Songdo City – South Korea – 60 m sf

Vedanta – India – 52 m sf

Guangzhou – China – 100 m sf
Research Funds by Region

Source: National Science Foundation, Federal Funds for Research and Development, Fiscal Years 2000, 2001, and 2002 (Table C-83); Fiscal Years 2004-06, Table 90
### 2006 Research Revenue Rankings

**University Only**

<table>
<thead>
<tr>
<th>State</th>
<th>Revenue Ranking</th>
<th>Patents to Revenue Ranking</th>
<th>Start ups to Revenue Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>1</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>2</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Chesapeake Crescent</td>
<td>3</td>
<td>19</td>
<td>37</td>
</tr>
<tr>
<td>Texas</td>
<td>5</td>
<td>14</td>
<td>33</td>
</tr>
<tr>
<td>North Carolina</td>
<td>9</td>
<td>13</td>
<td>19</td>
</tr>
</tbody>
</table>

Source: AUTM Licensing Survey Results by State, 2006
Patents per Capita by State

<table>
<thead>
<tr>
<th>State</th>
<th>Per 100,000 population (2002)</th>
<th>Per 100,000 population (2006)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virginia</td>
<td>16.1</td>
<td>11.1</td>
<td>+45.3%</td>
</tr>
<tr>
<td>Texas</td>
<td>28.7</td>
<td>21.1</td>
<td>+36.0%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>25.2</td>
<td>16.2</td>
<td>+55.4%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>67.9</td>
<td>50.2</td>
<td>+35.3%</td>
</tr>
<tr>
<td>Maryland</td>
<td>27.8</td>
<td>16.9</td>
<td>+64.6%</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>88.1</td>
<td>11.8</td>
<td>-86.6%</td>
</tr>
<tr>
<td>California</td>
<td>69.1</td>
<td>53.4</td>
<td>+29.4% change</td>
</tr>
</tbody>
</table>

Source: U.S. Patent and Trademark office; U.S. Census Bureau
Technology Licenses Executed per $10M in R&D Funding, by Region (2001, 2006)

* University of California system reported out of San Jose-San Francisco
US Entrepreneur Stats

- 92% Bachelor’s Degree
- 31% Master’s Degree
- 10% PhDs
- Nearly half of all degrees in science, technology, engineering and mathematics (STEM)
- One-third in business, accounting and finance

*Kauffmann Foundation Research: 502 companies established 1995-2005*
• Founder average and median age- 39 years old
• Founders w/ MBA- 13 years to startup
• Founders w. PhD- 21 years to startup
• Location
  – 45 % in same state as degree
  – California- 69%
  – Texas- 53%
  – Massachusetts- 29%
  – Virginia- 30%
  – Maryland- 15%
High Tech Jobs

Cyberstates 2008: A Complete State-by-State Overview of the High-Technology Industry
# Venture Capital Investment in Seed/Startups

<table>
<thead>
<tr>
<th>Region</th>
<th>2007 Venture Capital (millions)</th>
<th>2004 R&amp;D funding (millions)</th>
<th>VC Seed + startup investments (millions)</th>
<th>% of National VC investment in seed/startups</th>
<th>Ratio of VC capital to R&amp;D Funding</th>
<th>Ratio of VC seed + startup investment to CCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>$12,055</td>
<td>$18,041</td>
<td>$535</td>
<td>45.4%</td>
<td>67%</td>
<td>12</td>
</tr>
<tr>
<td>Chesapeake Crescent Region</td>
<td>$1,242</td>
<td>$18,454</td>
<td>$46</td>
<td>3.9%</td>
<td>7%</td>
<td>1</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>$3,489</td>
<td>$5,324</td>
<td>$115</td>
<td>9.8%</td>
<td>66%</td>
<td>9</td>
</tr>
<tr>
<td>North Carolina</td>
<td>$577</td>
<td>$1,677</td>
<td>$48</td>
<td>4.1%</td>
<td>34%</td>
<td>11</td>
</tr>
<tr>
<td>Texas</td>
<td>$1,416</td>
<td>$5,025</td>
<td>$31</td>
<td>2.6%</td>
<td>28%</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: MoneyTree Report by PricewaterhouseCoopers and the National Venture Capital Association
Traditional Tech Transfer

Innovator

Tech Transfer Office

Industry

Innovator

Tech Transfer Office

Entrepreneur

Industry

Innovator

Tech Transfer Office

Entrepreneur

Advisors

Early Stage Investor

Venture Capital

Industry
Clusters

- UMB BioPark
- Johns Hopkins S&T Park
- FDA White Oaks Village
Rapid Prototyping

- **Identify scope**
  - Identify “pain”
  - **Technology needs and requirements**
  - **Test data**
  - **Success metrics**

- **Scout**
  - **Broadcast needs**
  - **Shadow scenario**
  - **Use TechBridge to collect**

- **Filter**
- **Second phase screen with customer**
- **Final four**
Rapid Prototyping Examples

- *Data mining and visualization*

- *Graph database*
Innovation Platform

Chesapeake Crescent

- Technologists
  - IP Bundling and Auction Sales
  - Top 100 Research Rock Stars
  - Embedded Entrepreneurs in Residence

- Entrepreneurs
  - Next Gen SECs and Serial Entrepreneurs
  - University Fellows (Next Gen SECs)

- Early Stage $$
  - Independent Angels
  - Leverage Angel Clubs (CIT, TEDCO, NVP, CAN)
  - Alumni Angel PINs (JHU, UMD, UVA, VT)

- Large Scale Initiatives
  - Centers of Excellence & MURI's
  - Clusters & Mini Villages
  - Applied Energy Research Programs

Supporting Tactics:
- Leverage existing networks, organizations and events
- Execute a branding communications plan
- Outreach campaigns
- Frequent market research
Shopping List

Informatics
- data fusion
- data mining
- info assurance
- visualization
- authentication

Advanced Tech
- C4ISR
- hi-speed computing
- CBRNE-WMD-IED
- energy/power systems
- self organizing networks
Tech Scouting

Shopping List
- LBT
- Biometrics
- CBRNE
- UAV

Customer

Financial or Development Status

Early Stage $$

Embassies
VC’s
University Labs
Fed Labs
Incubators
ESQ’s
CPA’s
Angels

Demo
Roger London
Innovation Economy Program Director
Chesapeake Crescent
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RLondonMD@gmail.com