ACCESS
Applied Computational Science and Engineering Student Support

March 27, 2009
Duane Roth
Founded in 1985 at UCSD
  • Research Institutes
  • Private Sector
  • Government

Commercialization of Research
Entrepreneurialism Education
Advocacy on behalf of Innovation

~ 1,500 companies > $10 billion in funding
The mission and purpose of CONNECT is to assist in the creation of new science and technology commerce in San Diego.
## Programs & Affiliates Overview

<table>
<thead>
<tr>
<th>PERSONALIZED ASSISTANCE</th>
<th>RESEARCH SUPPORT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Springboard Core Program</strong></td>
<td><strong>Technology Transfer Roundtable</strong></td>
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<tr>
<td>Three to five months mentoring by Entrepreneurs-in-Residence and appearance before a panel of industry veterans, investors and top tier service providers.</td>
<td>Research institutes explore methods to improve technology transfer and business development efficiencies.</td>
</tr>
<tr>
<td><strong>Venture Roundtable</strong></td>
<td><strong>CONNECT-assist</strong></td>
</tr>
<tr>
<td>Connecting venture capitalists to early stage venture opportunities in technology, life sciences and clean technology.</td>
<td>Support of research institutes to recruit key faculty including mobilizing member CEOs and Entrepreneurs-in-Residence and assistance in grant writing where translational capacities are key components.</td>
</tr>
<tr>
<td><strong>Tech Coast Angels</strong></td>
<td><strong>Springboard Early Business Assessment</strong></td>
</tr>
<tr>
<td>Network of private investors in early-stage companies.</td>
<td>Concept stage inventors in research institutions have their innovations evaluated for commercialization potential by Entrepreneurs-in-Residence.</td>
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<tr>
<td><strong>Deal Network</strong></td>
<td><strong>The La Jolla Research &amp; Innovation Summit</strong></td>
</tr>
<tr>
<td>Springboard and Venture Roundtable “grads” pitch to private gatherings of individual high net worth investors.</td>
<td>Leading San Diego scientists provide vision of future to out-of-region venture capital.</td>
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<tr>
<td><strong>The Learning Curve</strong></td>
<td><strong>Programs &amp; Affiliates Overview</strong></td>
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<tr>
<td><strong>FrameWorks Workshops</strong></td>
<td>Half-day workshop series of business basics and timely topics.</td>
</tr>
<tr>
<td><strong>CEO Strategy Forum</strong></td>
<td>Mini-YPO for growth CEOs.</td>
</tr>
<tr>
<td><strong>Frontiers in Science &amp; Technology</strong></td>
<td>Lecture series showcasing ground-breaking research efforts.</td>
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<tr>
<td><strong>MIT® Enterprise Forum</strong></td>
<td>MBA-style case studies and high-level networking.</td>
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<table>
<thead>
<tr>
<th><strong>Networking, Awards &amp; Recognition</strong></th>
<th><strong>Programs &amp; Affiliates Overview</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Most Innovative New Product Awards</strong></td>
<td>“Oscars” for local technology product innovation.</td>
</tr>
<tr>
<td><strong>Entrepreneur Hall of Fame Awards</strong></td>
<td>Honoring San Diego’s innovation pioneers.</td>
</tr>
<tr>
<td><strong>Leadership Dinners</strong></td>
<td>Private dinner discussions with thought leaders.</td>
</tr>
<tr>
<td><strong>Connect with CONNECT</strong></td>
<td>San Diego’s leading technology networking event.</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th><strong>Cluster Initiatives</strong></th>
<th><strong>Programs &amp; Affiliates Overview</strong></th>
</tr>
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<tbody>
<tr>
<td><strong>CONNECT Innovation Report</strong></td>
<td>Regional indicator tracks California innovation economy quarterly.</td>
</tr>
<tr>
<td><strong>Cluster Acceleration</strong></td>
<td>Special initiatives to accelerate emerging San Diego clusters - Stem Cell on the Mesa Meeting, CleanTECH San Diego, Wireless-Life Science Alliance, CONNECT Sport Innovators, Advanced Autonomous Robotics and Cyber Innovation Summit.</td>
</tr>
</tbody>
</table>

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<tr>
<th><strong>Public Policy</strong></th>
<th><strong>Programs &amp; Affiliates Overview</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public Policy &amp; Advocacy</strong></td>
<td>Initiatives include: intellectual property, state and federal R&amp;D funding, capital formation, workforce development, regulation and trade, recruiting researchers.</td>
</tr>
</tbody>
</table>
CONNECT 2008

• 1,200 volunteers helped more than 1,000 companies

• 300 events attracted 10,000 registrations

• Springboard graduates raised nearly $100M

• 26 programs delivered coaching, financing, education, recognition, networking, cluster acceleration and advocacy

• Launched CleanTECH San Diego trade organization
Why San Diego?

Key Conditions for developing a Technology Cluster

- Research
- Money
- Talent
FIRST BIOTECH COMPANY
Why San Diego?

“The Otterson Culture”

- Help each other – compete in the marketplace
- Region above company
- Political issues matter
  - FDA Reform
  - UC Engineering slots
  - Security litigation reform
  - Animal activists
  - Etc…
- It’s ok to try and fail (as long as you try again)
Financing Innovation in America

Duane J. Roth
CEO, CONNECT
1980s
Co-Partnering

**DISCOVERY**
Bayh-Dole

**DEVELOPMENT**
Co-Develop
Co-Market
Co-Promote

**DELIVERY**
Grant Funding
Venture Capital
Angel Funding
IPO
Co-Partnering
The Innovation Challenges

- DISCOVERY
  - Mgmt by Objectives
  - Bayh-Dole
  - Valley of Death

- DEVELOPMENT
  - Contract Outsourcing

- DELIVERY
  - Co-Partnering
  - Culture Clash
  - Bet The Farm

- Grant Funding
- Venture Capital
- IPO
Where do Innovations Come From?

Fred Block and Matthew R. Keller

...innovations recognized by R&D Magazine as being among the top 100 innovations of the year over the last four decades.

...in the 1970s almost all winners came from corporations acting on their own, more recently over two-thirds of the winners have come from partnerships involving business and government, including federal labs and federally-funded university research.
Where do Innovations Come From?

...in 2006 77 of the 88 U.S. entities that produced award-winning innovations were beneficiaries of federal funding.

...approximately two-thirds of the award-winning U.S. innovations involve some kind of inter-organizational collaboration - a situation that reflects the more collaborative nature of the innovation process and the greater role in private sector innovation by government agencies, federal laboratories, and research universities.
2010

Distributed Partnering

Pioneers
- DISCOVERY
  - New Knowledge
  - Validation
  - Disclosure

AM-VCs
- DEFINITION
  - Intellectual Property
  - Development Plan
  - Proof of Concept

Enablers
- DEVELOPMENT
  - Process Development
  - Prototype
  - Manufacturing

Consolidators
- DELIVERY
  - Sales
  - Marketing
  - Distribution
- CONNECT-track
- New patent applications
- Research grant awards
- Research employment
- Angel and venture capital investment
- Technology business closings
California Newly Formed Innovation Companies

- Software
- Communications
- Bio/Pharma/Med
- Computer & Electronics
- Environmental Technology
- Defense and Transportation
- Recreational Goods
Growth Dynamics for California Start-ups
2007 - 2008

New Company Start-ups

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<tr>
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<tbody>
<tr>
<td>Q1</td>
<td>429</td>
<td>512</td>
<td>922</td>
<td>1367</td>
<td>430</td>
<td>585</td>
<td>777</td>
<td>580</td>
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</tbody>
</table>

Source: CONNECT; National University System Institute for Policy Research
SAN DIEGO

2008 Sector Distribution
Total New Companies Established = 299

- Software, 84
- Communications, 55
- Computer & Electronics, 34
- Recreational Goods, 14
- Defense and Transportation, 11
- Pharma/Bio/Medical, 85
- Environmental Technology, 16
2372 New Companies Established in California in 2008
## Summary of National Venture Capital Investments

<table>
<thead>
<tr>
<th>Region</th>
<th>Total (in billions)</th>
<th>Q1 2008</th>
<th>Q2 2008</th>
<th>Q3 2008</th>
<th>Q4 2008</th>
<th>2008 Total</th>
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<tbody>
<tr>
<td><strong>United States</strong></td>
<td>$30.9</td>
<td>$7.9</td>
<td>$7.7</td>
<td>$7.3</td>
<td>$5.4</td>
<td>$28.3</td>
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<tr>
<td></td>
<td>3,952</td>
<td>988</td>
<td>1,043</td>
<td>959</td>
<td>818</td>
<td>3,808</td>
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<td></td>
<td>$7.8</td>
<td>$8.0</td>
<td>$7.4</td>
<td>$7.7</td>
<td>$6.6</td>
<td>$7.4</td>
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<tr>
<td><strong>California</strong></td>
<td>$14.7</td>
<td>$4.0</td>
<td>$4.1</td>
<td>$3.7</td>
<td>$2.5</td>
<td>$14.3</td>
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<tr>
<td></td>
<td>1,626</td>
<td>429</td>
<td>423</td>
<td>403</td>
<td>297</td>
<td>1,552</td>
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<tr>
<td></td>
<td>$9.0</td>
<td>$9.6</td>
<td>$9.6</td>
<td>$9.1</td>
<td>$8.4</td>
<td>$9.2</td>
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<tr>
<td><strong>Northern CA</strong></td>
<td>$11.1</td>
<td>$3.1</td>
<td>$3.1</td>
<td>$2.9</td>
<td>$2.0</td>
<td>$11.1</td>
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<tr>
<td></td>
<td>1,255</td>
<td>328</td>
<td>3.19</td>
<td>319</td>
<td>223</td>
<td>1,189</td>
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<tr>
<td></td>
<td>$8.9</td>
<td>$9.3</td>
<td>$9.7</td>
<td>$9.1</td>
<td>$9.0</td>
<td>$9.3</td>
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<tr>
<td><strong>Southern CA</strong></td>
<td>$3.6</td>
<td>$0.97</td>
<td>$0.97</td>
<td>$0.8</td>
<td>$0.5</td>
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<td>371</td>
<td>101</td>
<td>101</td>
<td>84</td>
<td>74</td>
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<td>$9.7</td>
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<td>$9.6</td>
<td>$9.3</td>
<td>$6.6</td>
<td>$8.8</td>
</tr>
<tr>
<td><strong>San Diego</strong></td>
<td>$2.0</td>
<td>$0.44</td>
<td>$0.37</td>
<td>$0.20</td>
<td>$0.21</td>
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<tr>
<td></td>
<td>163</td>
<td>40</td>
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<td>24</td>
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<td>126</td>
</tr>
<tr>
<td></td>
<td>$12.0</td>
<td>$11.0</td>
<td>$9.8</td>
<td>$8.2</td>
<td>$8.5</td>
<td>$9.7</td>
</tr>
</tbody>
</table>

* includes Silicon Valley and Sacramento
** includes Los Angeles County, Orange County, and San Diego

Source: PricewaterhouseCoopers/National Venture Capital Association MoneyTree Report; CONNECT
VC Investments by Industry - San Diego Q4 2008

- **Biotechnology** $73 M - 36%
- **Networking & Equipment** $27 M - 13%
- **Industrial & Energy** $42 M - 21%
- **Telecommunications** $21 M - 10%
- **Semiconductors** $13 M - 6%
- **Media and Entertainment** $10 M - 5%
- **Software** $8 M - 4%
- **Electronics & Instrumentation** $7 M - 3%
- **IT Services** $4 M - 1%
- **Medical Devices & Equipment** $1 M - 0%

Source: CONNECT; National University System Institute for Policy Research
## High-Tech Employment Clusters

<table>
<thead>
<tr>
<th>Cluster</th>
<th>'07 Jobs</th>
<th>Ave. Wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biotechnology</td>
<td>39,985</td>
<td>$ 84,679</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>26,606</td>
<td>$ 119,392</td>
</tr>
<tr>
<td>Defense Manufacturing</td>
<td>20,189</td>
<td>$ 75,328</td>
</tr>
<tr>
<td>Software</td>
<td>14,653</td>
<td>$ 86,784</td>
</tr>
<tr>
<td>Computers/Electronics</td>
<td>13,396</td>
<td>$ 83,414</td>
</tr>
</tbody>
</table>

**Total High-Tech Clusters** 114,829  N/A

**Total Non-Farm Jobs** 1,308,200  $ 46,350

San Diego Innovation Economy
The Critically Important Issues

Research Excellence
- Federal & State Funding
- Translational Funding
- Technology Transfer

Early Stage Funding
- SBIR etc.
- Angel
- Venture Capital

Policy
- Regulation/Reimbursement
- Trade
- Workforce Development
- Intellectual Property
Growth Dynamics for San Diego Start Ups

- Pharma, Bio & Medical: 30%
- Software: 25%
- Communications: 21%
- Computer & Electronics: 14%
- Environmental Technology: 6%
- Defense & Transportation: 2%
- Recreational Goods: 5%

Source: CONNECT; National University System Institute for Policy Research