Connecticut's Technology Sector Situation Assessment

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nextgen
Start-ups to Stand Outs

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CONNECTICUT HAS ABUNDANT RESOURCES, YET ITS TECHNOLOGY SECTOR LAGS MOST OTHER STATES AND IS IN DECLINE…

CURRENT SITUATION

- Connecticut ranks in top ten states on measures of capacity for New Economy development
- Connecticut ranks 50th in pace of growth for Entrepreneurial and Business Vitality between 1992 and 2002

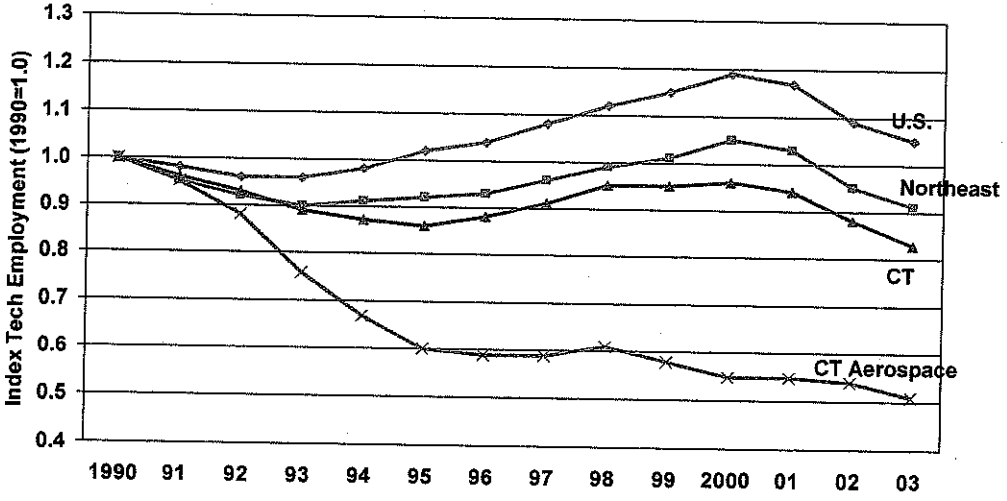
Source: *Connecticut's New Economy Benchmarks, Fall 2003 - CERC & DECD*

- Ranked 48th among the best states for entrepreneurs in 2006, down from 43rd in 2005 – *Entrepreneur AND NPRC's 2006 Hot Cities for Entrepreneurs*
- Not a single city featured in the list of America's 50 Hottest Cities for 2007 - *Expansion Management survey, Dec 2006*
- Ranked 48th on the basis of growth in Real Gross State Product by State, 2001-2005 - *US Bureau of Economic Analysis*
- Connecticut sees continued decreases in overall high technology employment
  - Currently down to 200,000 jobs from a peak of 240,000 jobs – *CERC 2004*
- Connecticut does not have comparable early stage capital including angel, pre-seed and seed capital - *Report to CT Tech Transfer and Commercialization Advisory Board by Innovation Associates Inc, Oct 2004*
- Mild to flat populations and employment growth
  - Population index of 1.1 in CT vs. 1.7-1.9 in the South & West – *CERC 2004*
- New firm formation is 25% lower than the Northeast and 10% lower than the US – *US SBA*
- SBIR grants to CT firms have declined by more than 50% - US SBA, US Bureau of Labor Statistics
- Other states are NOT standing still
  - Minnesota – Joint research initiative of University of Michigan and Mayo Clinic
  - St. Louis, Missouri – Over $1B in new venture capital invested since 2000
  - Ohio – "Ohio's Third Frontier" ($1.6B in stem cells/bioimaging)
  - Iowa – Pledged new $150M Seed/Start-up Fund
  - New Jersey – Battelle Ventures $150M Seed/Start-up Fund

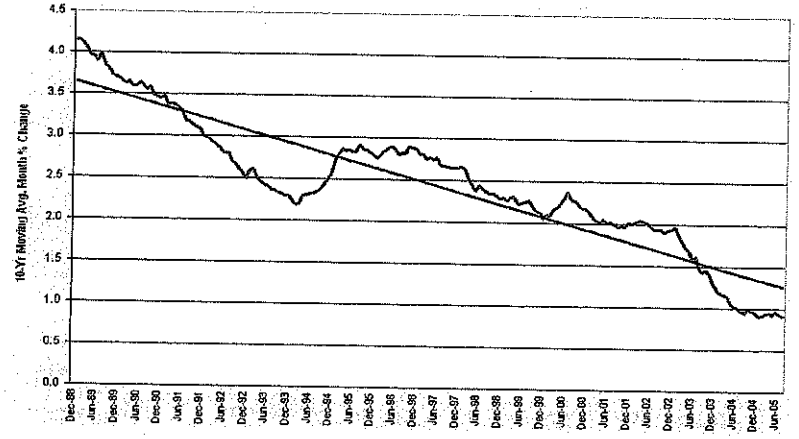
EMPLOYMENT TRENDS ARE BELOW NATIONAL AND REGIONAL AVERAGES...

JOB CREATION

Technology Industry Employment



Monthly employment growth trend



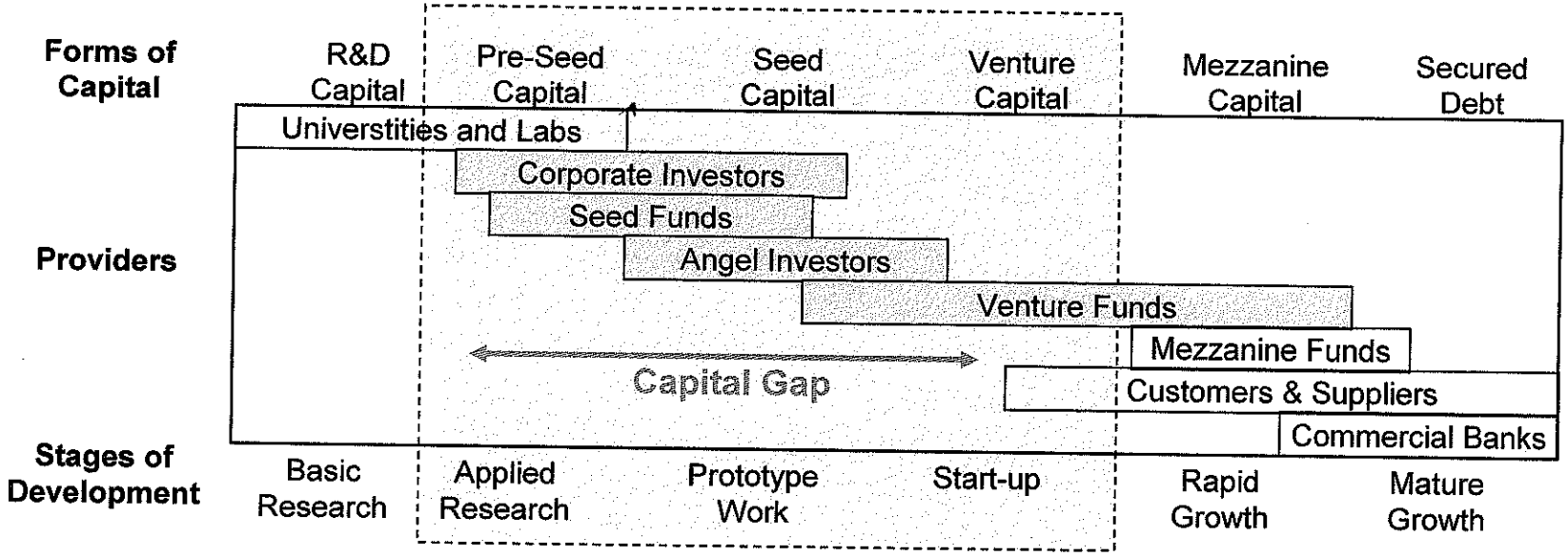
Source: Economy.com; CT Dept of Labor; Calculations by CERC

Observations

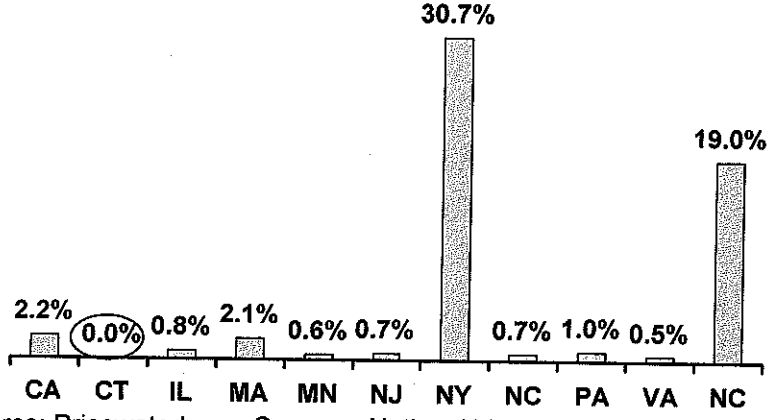
- Between 1989 & 2004 CT had no net job growth
- Job growth has been in lower paying industries such as hospitality
- Technology sector employment is declining more quickly relative to other states
- Small businesses account for approximately a third of CT's employment base

INADEQUATE EARLY/ SEED STAGE CAPITAL ...

CAPITAL AVAILABILITY



Start-up/ Seed Stage VC
(% of Sate VC 2005 Investment)



Source: PricewaterhouseCoopers, National Venture Capital Association

Observations

- Investments in Connecticut are a tenth of Silicon Valley in terms of the number of investments and amount invested
- Most of the capital in CT is invested outside the state
- No private VC firms specifically targeting CT ventures
- Most CT investments are in the area of later stage expansions

CONNECTICUT RANKS NEAR THE BOTTOM AMONGST THE 10 LEADING TECHNOLOGY STATES ...

BENCHMARKS

Metrics	Expenses ($ Millions) per patent issued to state institutions	Expenses ($ Millions) per start-up initiated from state institutions	Percentage of total US patents granted	Percentage of total US patents grantedDelta vs '95	Percentage of High School seniors planning to major in Computer, Engineering or Information Science	Engineering Degrees awarded per 100,000 residents	Business incubators per 10,000 business establishments	Rapidly Growing firms i.e. 20% YoY for 5 years	VC Investments ($ Millions)
Period	1995-2004	1995-2004	2005	vs. 1995	2005	2005	2005	2000-2005	2005
CA	$ 6.7	$ 72.6	23.0%	6.8%	12%	44	1.3	379	$ 10,633
CT	$ 11.1	$ 99.0	1.9%	-0.9%	9%	29	0.9	29	$ 186
IL	$ 11.4	$ 110.4	4.0%	-1.3%	13%	37	0.9	124	$ 293
MA	$ 7.0	$ 68.2	4.1%	0.1%	11%	76	1.9	145	$ 2,455
MN	$ 8.9	$ 89.1	3.2%	0.2%	14%	26	1.8	65	$ 231
NC	$ 9.1	$ 78.4	2.2%	0.4%	13%	31	1.9	44	$ 472
NJ	$ 6.6	$ 62.4	3.7%	-1.3%	10%	37	0.7	115	$ 947
NY	$ 8.2	$ 92.9	6.8%	-1.7%	10%	48	1.7	154	$ 1,074
PA	$ 9.8	$ 77.4	3.4%	-1.3%	10%	51	1.8	124	$ 470
VA	$ 9.0	$ 51.1	1.3%	-0.2%	14%	51	2.2	182	$ 413
CT Rank	**9**	**9**	**9**	**6**	**10**	**9**	**8**	**10**	**10**
Source:	Assoc. of Technology Managers	Assoc. of Technology Managers	US Patent & Trademark Office	US Patent & Trademark Office	The College Board	American Assoc of Engineering Societies	Commonwealth of MA	Inc. Magazine	PwC/ NVCA/ MoneyTree Survey

Source: John Adams Innovation Institute

… AND EMPLOYMENT TRENDS, AND INVESTMENTS IN CRITICAL CLUSTERS IS DISCOURAGING …

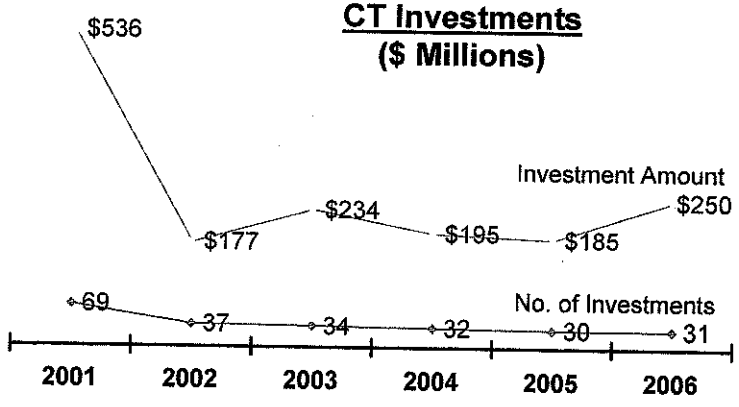
BENCHMARKS

Cluster Employment 2004-2005
(% change)

Clusters	MA	CA	CT	IL	MN	NJ	NY	NC	PA	VA
Computer & Comm Hardware	(0.4)	(1.6)	(3.3)	(2.3)	(1.2)	(1.4)	(5.2)	(0.8)	(1.3)	4.5
Defense Mfg & Instrument.	(1.8)	(0.3)	0.3	0.8	1.9	-	3.3	6.2	1.0	4.1
Diversified Ind. Support	(4.7)	(1.0)	(1.5)	(1.0)	0.2	(1.6)	(2.9)	(1.0)	(1.2)	1.6
Financial Services	(0.3)	1.8	-	0.3	1.4	1.1	2.0	2.2	(0.2)	0.5
Healthcare Technology	(0.7)	1.7	(0.3)	(2.2)	4.3	(2.9)	(0.7)	2.1	(0.5)	1.5
Sci, Tech & Mgt Services	5.4	7.0	0.2	4.1	1.7	4.2	2.2	6.4	5.5	14.1
Business Services	1.5	3.1	-	2.1	(0.9)	(0.3)	1.7	2.9	0.7	3.9
Post Secondary Education	-	4.8	2.9	5.1	2.7	(0.1)	1.1	1.4	3.3	3.8
Software & Comm. Services	1.9	0.4	(1.1)	(0.3)	(0.9)	0.2	(0.3)	2.5	(0.3)	(0.9)
Textiles & Apparel	(4.9)	(6.6)	(7.7)	(3.7)	(3.1)	(10.4)	(9.8)	(10.8)	(11.2)	(9.6)

Source: Moody's Economy.com

CT Investments
($ Millions)



Source: PricewaterhouseCoopers, National Venture Capital Association

Observations

- Significant employment losses in CT's IT sector
- Only 31 investments in CT technology companies, compared to 1,046 in Silicon Valley and 381 in New England in 2006
- The seed/early stage of investing in CT has virtually disappeared with only 2 investments in '06
- Nationally seed/early stage investing increased 16% in deals and 11% in dollars while it reversed in CT

THE KEY NEEDS FOR A TECHNOLOGY-BASED ECONOMY ARE: "TECHNOLOGY, TALENT AND CAPITAL"...

Key Best Practices/Professional Recommendations

Battelle TPP – Best Practices

- **Engage Universities with Active Leadership**
- Building entrepreneurial cultures with intensive networking across sectors and with industry
- Quality of life amenities
- **Available capital covering all stages of business cycle**
- Discretionary Federal or other R&D funding
- **Workforce and talent pool**
- Access to specialized facilities and equipment including technology infrastructure
- Supportive business, tax and regulatory policies
- Patience and a long-term perspective

Innovation Associates - Recommendations

- Initiate Aggressive Courting of Federal Funds to support Targeted Initiatives
- **Explore Development of Innovation Ventures Center**
- **Increase Angel & Seed Capital**
- Enhance Networking Capacity
- Educate Policy Makers
- **Increase Corporate Role in Universities**
- Develop Strategic Plan at UCONN
- Enhance Entrepreneurial Development Activities at UCONN and Yale
- Encourage Collaborative R&D between Yale, UCONN and Regional Universities
- Implement "It's Time to Come Home" Campaign
- **Create Permanent Technology Transfer Advisory Board**
- Engage Bi-Partisan Support and Involve State Legislators

Source: Battelle TPP/Innovation Associates Inc

BATTELLE'S TECHNOLOGY PARTNERSHIP PRACTICE RECOMMENDED A FIVE-POINT APPROACH TO ADDRESSING RISK CAPITAL IN CT…

Battelle TPP – Addressing Risk Capital

- Use State's general and pension funds to invest privately managed venture funds
- Offer State assistance to firms to leverage Federal SBIR funds
- Provide technical assistance to companies to better access private financing sources
- Offer R&D tax incentives
- Form pre-seed/seed or later stage funds

Source: Battelle TPP's *Best Practices in State and Regional Technology-based Economic Development*

THERE ARE MANY STATES DOING IT BETTER... ST LOUIS COULD SERVE AS A COMPARABLE MODEL ...

Case Study

ST LOUIS

- Developed the St Louis Capital Alliance to develop a vibrant venture capital environment
- St Louis raised over $300 million in venture capital for plant and life sciences from philanthropic and private investors
- Separate Proof of Concept fund and Pre-Seed Funds
- Establishment of "Arch Angel" Fund

Results

- Approximately $1 billion of venture capital invested since 2000
- Five St Louis companies have made it onto Business Week's "Hot Growth" list
- St Louis is home to two of the five finalists in the 2005 Ernst & Young Entrepreneur of the year award for the Central Midwest region
- Three St Louis firms made Fortune magazine's 2005 top 100 fastest growing small public companies in America

Source: Website, VentureSource

NEW COMMERCIALIZATION FOCUSED MODEL ...

Case Study

BATTELLE VENTURES

- **Firm**
  - Established in 2003; Based in Princeton, NJ
  - $150MM under management
  - Focus on Life Sciences, Homeland Security, IT, Materials & Energy
- **Structure**
  - 1 Fund
  - Team – 4 GP's, 2 Associates, 1 CFO
  - Advisory Board – N/A
  - Commercializes technologies that emerge from Battelle Memorial Institute and the laboratories that Battelle manages or co manages for the U.S. Department of Energy.
- **Approach**
  - Non linear model for product innovation
  - Use state general and pension funds to invest in privately managed funds
- **Results**
  - Invested in 4 companies in first 12 months

Source: Website, VentureSource

TRADITIONAL VC MODEL STRUCTURE...

Case Study

APEX VENTURE PARTNERS

- **Firm**
  - Established in 1987; Based in Chicago, IL
  - Initial "quasi-public" seed fund of $10MM
  - $500MM under management
  - Focus on early stage investments in enterprise applications & services, IT infrastructure, and telecommunications
- **Structure**
  - 5 Funds
  - Team – 7 GP's, 3 Staff
  - Advisory Board - 6
  - Invest in companies having the greatest potential for value creation, regardless of geography
- **Results**
  - Invested in 110 companies

Source: Website, VentureSource