San Diego and Beyond
Trends in Innovation and Investment

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30 October 2007
San Diego’s High Tech History

1955 - General Atomics
1956 - Scripps Clinic & Research Center
1960 - UCSD Founded
1963 - Salk Institute
1968 - Linkabit
1978 - Hybritech
1985 – UCSD CONNECT and Qualcomm Founded
1990-93 – 63,000 Jobs Lost
1995 – New Boom

Series of Catalytic Events

VC Funding
“The great enemy of truth is very often not the lie … but the myth.”

John Fitzgerald Kennedy
No master plan
A series of ‘happy accidents’
UCSD had no Business School or resident Tech Transfer when CONNECT began
Simultaneous growth of research infrastructure (Salk Institute, Scripps Research Institute, etc)
A region blessed with research leadership and vision
Decisions were made in the 50’s which put into place the foundation for the future of San Diego
San Diego’s Transformation over the past 20 years

- Replaced 100,000 jobs lost in defense with 120,000 in new companies – 2/3 high wage
- 30,000+ employment in biotech; 25,000+ in IT; 12,000 attorneys – when started/800
- Highest concentration of biotech in U.S.
  - 500+ life sciences companies
- The wireless communications capital
  - 525 companies in the region
  - Global brands: Qualcomm, Motorola, Nokia
- $1.3 billion research base; more than doubled
- $1.2 billion venture capital; increase of 8-10 fold
Hybritech
Economic Process

Plantation

Rain Forest
People are the most important asset
- People with money
- People with ideas

Knowledge as a Resource for Innovation

Culture is a ‘gating’ factor

Science and Technology innovations are global from ‘birth’

Failure seen as a positive ‘metric’

Growth and sustainability of new enterprise relies heavily on social infrastructure

‘Community over Company’

Companies are built by teams

Principles and Values of Successful Innovation Systems
- Relationships → Trust → Transactions
- Networks which serve to breakdown social and professional hierarchies drive lateral learning and knowledge transfer
- Diverse competencies that can be mobilized quickly
- Efficient leveraging / allocation of regional assets & resources
- Harnessing the collective intelligence (i.e. ‘Wisdom of Crowds’)
- The ‘Porsche’ Principle
- Understand the way entrepreneurs ‘learn’
  - Non linear
  - Just in time
  - Peer network driven
  - Curious and Passionate
• Focus on outcomes, not just outputs
• Having a company and having a business are not the same thing
• Shared Risk and Rewards...collective sense of ‘ownership’
• The ‘Parking Lot’ principle
• Embedded Observation
• People are the ultimate technology transfer
• Commercialization is a ‘Body Contact’ sport

Principles and Values (continued)
- **Intellectual Capital** - defined as knowledge creating and developing activities and professionals

- **Smart Venture Capital and Management Know-How** – defined as knowledgeable investors and managers of start-up and high growth companies

- **Human Capital** – defined as a workforce capable of operating effectively in science based companies and institutions which continually train and educate workers to adapt to new requirements in emerging technology sectors
• A Global Think Tank focused on Innovation Systems and their applications to regional economic development
  ◦ A research practice engaged in the assessment, benchmarking, and comparative analysis of regional capabilities and capacity
  ◦ A consulting firm with applied expertise in program development, process engineering, economic development strategy, and policy
  ◦ A global workforce education delivery platform
  ◦ Hands-On Management of Global Partnering programs designed to link researchers and enterprise to critical global resources through ‘hub and spoke’ soft landing pads, and extended social and professional networks
  ◦ ‘A network of networks’, currently numbering 18 countries and 25 cities internationally

Global CONNECT
Global CONNECT Network

- CONNECT Northwest (Spokane)
- CONNECT Northern New Mexico (Los Alamos National Labs)
- UC Davis CONNECT
- Massachusetts Technology Transfer Center, MTTC (Boston)
- OCTANe (Orange County)
- CONNECT Scotland (3)
- CONNECT Sweden (7)
- CONNECT Norway
- CONNECT Northern Ireland
- CONNECT Denmark (4)
- CONNECT Finland
- CONNECT Estonia
- CONNECT Latvia
- CONNECT Midlands (UK)
- CONNECT Yorkshire (UK)
- CONNECT Jordan
- ANU CONNECT (Australia)
- CONNECT Auckland (New Zealand)
- CONNECT Christchurch (New Zealand)
- CONNECT Korea
- CONNECT Taiwan
- SetSquared Partnership (UK)
- Solent Synergy (Southampton, UK)
- Illinois Global Partnership (Chicago)
- Jigsaw Group (Australia)
- The Cambridge Network (UK)
- Keio University (Japan)
- MaRS (Toronto, Canada)
- ATP Innovations (Australia)
- Technion (Israel)
Challenges in the Implementation of Regional Innovation Systems

- Why You?....Why Now?....and Why Bother?
- ‘Layering’ regional collaboration activities upon existing infrastructure
- What is the role of government?
- What feedback loops (client, supporter, stakeholder) do you build into your system?
- What is the appropriate model for funding?
- How do you create a sense of urgency?
- How do you start the process that allows the region to grow into our destiny, rather than build it upon decades old models?
- What is the appropriate interface between technology transfer and technology commercialization
Innovation has become geographically agnostic
- What is driving this?
  - The world wide web... **information on demand**
  - Highly mobile and skilled workforce (**People are the ultimate technology transfer**)
- **Open Innovation**
- Evolution of **social networks** on a global scale
- **Cross disciplinary** science
- **Global** research and commercialization **alliances**
- Acknowledgement that **serendipity** plays a role in success...as the Boy Scout motto says,' Be Prepared’
• New models of business engagement
  • The creation of micro-multinational enterprise
  • The virtualization of the corporation
  • Greater competition for global resources
  • Faster scaling of non-infrastructure dependent opportunities
  • Opportunities defined around bundled IP rather than single ideas
  • Regions that have models in place for mobilizing assets and resources ‘on demand’ as opportunities present themselves are in a position of advantage
  • Venture capital is globalizing (Other professional services – including legal, accounting, real estate, banking – have done this faster due to shorter customer feedback cycles)

What does this mean?
The Classical Startup
A New Kind of Startup
• Critical resources to grow innovations into global commercial opportunities are geographically dispersed
  • ‘Smart’ capital is still clustered
  • Research universities and institutes are critical to the ideation and creation of new science based companies.
  • Serial entrepreneurial teams that can execute are favored
• Managing resources across cultures, time zones, geographies
• Single innovations will not be enterprise defining....bundling of technologies will create competitive differentiation
• Definitions and Metrics: What is success...and how is it measured?
• Competition for resources
• Harmonization of Intellectual Property
• Global Syndication of deal flow
• How to effectively leverage and build scalable business and social models of engagement that can harness the ‘collective intelligence’

The world is not flat......yet
Go to where the puck is going, not where it has been.”

Wayne Gretzky
2006 global venture capital investment exceeded $35B
- The highest level since 2001
- United States = $25B of that number
  - California = $12.2 B
- China = $1.9B total VC investments
  - 2\textsuperscript{nd} largest venture capital recipient (US is #1)
  - As a region, 3\textsuperscript{rd} behind California and Massachusetts
- India
  - $1B invested
  - 4x increase in the number of funds
  - 44 US Funds have invested in India
  - 21 are raising dedicated funds to invest
- Russia
  - $29M invested (small by global standards)
  - Recently launched 2 government funds, which could eventually reach $1B
  - Ministry of Economic Development and Trade
  - $100M Government seed fund
  - World’s 3\textsuperscript{rd} largest software developer by US and India
• **Joint funds** (often strategic)
• **Diversifying** pool of strategic **limited partners**
• **Local funds** deployed in connection with a **global brand** (Sequoia, Kleiner Perkins) and local teams under one global affiliation (DFJ)

**Cross Border Investments** increasing
  ◦ Nearly 20% of all $ invested were done across geographical / continental boundaries
    • Does not count intra-European or intra-Asia deals
    • If these were included, then it would be 30%
  ◦ Up 250% over the past 5 years
  ◦ This trend will continue to increase

• **Venture Licensing**
  ◦ Replicating a proven business model in a new geography
  ◦ Reduce time to market through technology transfer and processes in return for royalties.
Investment Trends

- Web 2.0
- Cleantech
- Healthcare (including Ageing, Nutraceuticals)
- Biotech ($28B)

What is driving these trends?
  - Globalization of Venture Capital
    - Global Consumer Markets
    - Global Competition
    - Purchasing power and opportunities within emerging markets
  - Increased costs of doing business in developed markets
  - Open Source
• Proactive global alliances in research and technology commercialization
• Linking of promising inventions with geographically dispersed resources
• Programs and institutional mechanisms set as ‘platforms’ to give regions reach and scale
• Access to ‘truly global’ capital providers
• Efficient allocation of resources and leveraging of unique capabilities

How do we align interests?
“While we associate economic growth with technological development, organizational innovation has played an equal, if not more important role since the beginning of the industrial revolution.”

Economic historians Douglass North and Robert Thomas (P47 of “Trust”)

Thank you!
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