



Entrepreneurial & Capital Formation Initiative

**The Japan-U.S. Entrepreneurial Forum:
Economic Revitalization through
Entrepreneurship**

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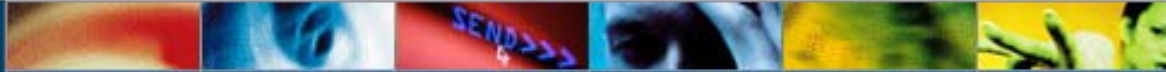




Role of Innovation

- **Overview of relationship between business activity and venture capital and its impact on innovation.**
- **Commercialization of technology from university to business ventures.**
- **Small Business Innovative Research.**





Role of Innovation

**Does Venture Capital Spur
Innovation?**



Does Venture Capital Spur Innovation?

■ 3 Different Perspectives:

- VC unleashes innovation?
 - VC removes capital constraints and accelerates R&D.
- VC is neutral to innovation?
 - VCs pick the best ventures and are the gatekeepers.
- VC stifles innovation?
 - Unconventional (more innovative) ventures are screened out as too risky, while other (less innovative) ventures are promoted over them.

Research to Date Remains Inconclusive



Empirical Evidence that VC Has A Strong Positive Impact on Innovation

- **Venture activity increases patenting.**
- **Venture-backed firms accounted for 8% of industrial innovation during the decade ending 1992, and 14% of innovation by 1998.**
- **Statistics significant considering that the ratio of venture capital to R&D spending averaged only 3%.**





Role of Innovation

**Whatever VC's Effect on
Innovation, Research Clearly
Identifies *VC as a Key Factor
Powering U.S. Economic
Growth.***



Venture Capital Identified as a Key Factor Powering U.S. Economic Growth

- **Non-Venture backed companies remain FAR more commonplace than venture backed companies.**
 - **Analysis of Inc. 500 “America’s fastest growing private companies” in 2000 shows 16% started with <\$1,000, 42% with <\$10,000, and 58% with <\$20,000, whereas <5% started with venture capital.**
 - **Every year in the US, 10 million people try to start 5 million new ventures, and only 1,000 have formal venture capital in hand.**



Venture Capital Identified as a Key Factor Powering U.S. Economic Growth

- **Despite substantially fewer numbers of venture- as compared to non-venture backed companies, venture backed companies . . .**
 - **Had twice the sales,**
 - **Generated twice the exports,**
 - **Paid three times the federal taxes, and**
 - **Invested almost three times more in R&D.**



Venture Capital Identified as a Key Factor Powering U.S. Economic Growth

- **Venture capital boosts GDP and creates jobs, and VC-funded companies in 2000 . . .**
 - **Contributed \$1.1 trillion to GDP,**
 - **Accounted for nearly 12.5 million jobs, and**
 - **Added another 14.5 million jobs in supporting businesses**
- **VC supports innovation across the board.**
- **VC creates “Industry Clusters.”**
- **VC fosters local and regional growth.**



VC-Backed Companies Outperform their Non-Venture Backed Counterparts

- **VC-Backed Companies . . .**
 - **Outperform non-VC backed companies before IPO and after IPO.**
 - **Brings products to market faster.**
 - **“Professionalize” earlier.**
 - **Time IPOs more effectively to the market.**
 - **Have higher valuations.**



VC-Backed Companies Outperform their Non-Venture Backed Counterparts

■ Factors include . . .

- Energized culture**
- Intense commitment by management**
- Resources for accelerated R&D and innovation**
- Industry expertise and guidance of investors**
- Alignment of economic interests between investors and management**





Role of Innovation

Commercialization of Technology from University to Business Ventures





Benefits of University/Industry Relationships

- **Basic Research**: *Basic* R&D (a university strength) progresses even when industry R&D budgets (best focused on *applied* R&D) are tight.
- **Graduate Education**: Faculty/students get enriched training through improved understanding of industrial problems.
- **Increased Awareness**: Industry exposes universities to market concerns and approaches to research.
- **Cost Effectiveness**: Cooperation leverages funds to stretch limited resources of both universities and industry.
- **Government Funding**: University-Industry alliances remain necessary to get government funds for certain solicitations.
- **Business Opportunities**: University technology transfer industry produces R&D for commercial applications.



Models of University/Industry Relationships

- **Sponsored Research**: Corporate sponsor funds statement of work for a specified time, in exchange for a license or other rights to resulting IP.
- **Collaborative Research**: Federal government sponsors university-industry collaboration on negotiated terms concerning IP ownership, commercialization, etc. (e.g., Small Business Technology Transfer Program and NASA Centers for Commercial Development of Space).
- **Consortia**: Companies join forces to contribute resources supporting R&D in an area of common interest.





Models of University/Industry Relationships

- **Technology Licensing**: R&D program wherein licensee offers consideration (license fees, reimbursement of patent costs, etc.) to commercialize IP rights owned in some measure by university.
- **Start-Up Companies**: Established as university “spin-offs” to commercialize rights obtained through license agreement with the university that, in turn, may take equity, fees, and/or royalties from the start-up.
- **Exchange of Research Materials**: Agreements facilitate exchange of research materials between university scientists and industrial laboratories (usually just for research, not commercialization).



Role of Innovation

Current Topics and Successful Examples of Small Business Innovative Research (SBIR)





Current Topics of SBIR

- **SBIR Defined:** SBIR is a Program enacted since 1982 within the US Small Business Administration that provides competitive R&D awards to US-owned, independent, for-profit enterprises of 500 or fewer employees that employ the principal researcher.
- **Budget Sources:** 10 major federal agencies must reserve defined portions of their R&D funds for SBIR.





Current Topics of SBIR

■ 3 Phases of SBIR Program

- **Phase I: Awards up to \$100,000 for 6 month assessment of technical merit and feasibility.**
- **Phase II: Awards up to \$750,000 for up to 2 years to Phase I awardees to evaluate commercial potential and progress R&D.**
- **Phase III: R&D moves from lab to market, but without SBIR funds.**
- **Small Business Technology Transfer Program (STTR): New SBIR program for non-profit research institutions and universities (especially high technology R&D).**



Successes of SBIR

- **Growth from 686 Phase I awards totaling \$44.5 million in 1983 to 3,215 Phase I and 1,533 Phase II awards exceeding \$1.5 billion in FY 2001, with growth in STTR sub-program from \$19m to \$78m in same time.**
- **39% of Phase II projects result in commercialized products or services covering entire high technology spectrum.**



Issues To Consider

- **Can Japan duplicate U.S. success? Factors include . . .**
 - **Government policies, cultural and social norms, education and training.**
 - **Prevalence of entrepreneurs.**
 - **Support environment.**
 - **Venture capital structure:**
 - **Equity vs. loans**
 - **Individuals and pension funds vs. banks and insurance**
 - **R&D focus on traditional Japanese strengths**
 - **Examples: Computing, gaming, optics, communication.**
 - **Example success: Scandinavian focus on mobile telecom.**





Thank You!

Open To Questions and Comments

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