



**“Support Mechanisms for Small Businesses
To Become Actors in Innovation Systems”**

**TAFTIE Annual Conference: New Frontiers
For Research and Innovation Agencies**

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Clusters in Emerging S&T Fields Have Grown in Numerous U.S. Cities

- ❖ Information Technology/Software
 - Pittsburgh
 - Atlanta

- ❖ Biotechnology/Pharmaceuticals
 - San Diego
 - Research Triangle
 - Pittsburgh
 - St. Louis

Universities Often Provide a Research Base Upon Which Clusters Are Built

- ❖ Pittsburgh -- Univ. of Pittsburgh & Carnegie Mellon Univ.
- ❖ Atlanta -- Georgia Inst. of Tech, Emory Univ. & Georgia State Univ.
- ❖ San Diego -- University of California, San Diego
- ❖ Research Triangle -- Univ. of North Carolina
- ❖ St. Louis -- Washington Univ. & Univ. of MO, St. Louis

Universities are a major source that feeds the pipeline for new business startups. Based on the latest AUTM Licensing Survey™:

- ❖ Since 1980, U.S. universities have spun out more than 4,500 startups based on licenses from those institutions; 2/3 of these startups are still in business.
- ❖ Reporting universities now are spinning off nationally about 400 startups per year.

U.S. Startups Averaged over Five Years (FY 2000-2004)*

- ❖ MIT stands out from the others – it spun off an average of 24 new businesses per year.
- ❖ The top 10 U.S. universities were:
 - 1) Massachusetts Institute of Technology
 - 2) University of California
 - 3) California Institute of Technology
 - 4) Georgia Institute of Technology
 - 5) Stanford University
 - 6) University of Michigan
 - 7) University of Illinois, Chicago, Urbana
 - 8) University of Pennsylvania
 - 9) University of Southern California
 - 10) University of Minnesota

U.S., Canadian & European Startups – FY 2004*

- ❖ Three European institutions ranked in the top 10.
- ❖ The top 10 institutions were:
 - 1) Massachusetts Institute of Technology (USA)
 - 2) University of Illinois, Chicago, Urbana (USA)
 - 3) [Medical Research Council Technology \(UK\)](#)
 - 4) Georgia Institute of Technology (USA)
 - 5) California Institute of Technology (USA)
 - 6) [Satakunta Polytechnic \(Finland\)](#)
 - 7) University of Michigan (USA)
 - 8) Duke University (USA)
 - 9) University of Pittsburgh (USA)
 - 10) [National Network of Technology Transfer, DTU \(Denmark\)](#)

*(AUTM; ASTP; Milken Institute)

U.S., Canadian & European Startups Per Research Expend.*

- ❖ Two European institutions ranked in the top 10.
- ❖ The top 10 institutions were:
 - 1) Satakunta Polytechnic (Finland)
 - 2) Brigham Young University (USA)
 - 3) National Network of Technology Transfer, DTU (Denmark)
 - 4) University of Waterloo (Canada)
 - 5) Simon Fraser University (Canada)
 - 6) University of North Carolina, Charlotte (USA)
 - 7) University of Toledo (USA)
 - 8) Rensselaer Polytechnic Institute (USA)
 - 9) University of Notre Dame (USA)
 - 10) Michigan Technological University (USA)

*(AUTM; ASTP; Milken Institute)



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Support Mechanisms for Small Businesses

What are universities, organizations, and local, state and national governments in the U.S. doing to stimulate and support university and other startups?

Universities: Policies & Programs to Stimulate University Startups

- ❖ Federal legislation – the Bayh-Dole Act of 1980 accelerated university technology transfer by establishing a uniform federal invention policy that permitted universities to retain title to inventions developed through federally funded research.
- ❖ At least 164 universities* in the U.S. conduct technology transfer activities including filing patents, trademarks and copyrights, and executing licenses. Most also provide some support for start-ups.

*(Responses to AUTM Survey™, FY 2004.)



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- ❖ Universities successful in commercializing technologies and starting up enterprises understand that engineers and scientists make poor business people.
- ❖ Entrepreneurial-engaged universities provide, or facilitate access to sources of risk capital, management capacity building, and networking.

- ❖ University technology transfer offices often have close linkages to private seed and venture capital firms. Successful offices facilitate linkages between researchers and these firms.
- ❖ Some universities sponsor or encourage linkages to enterprise forums or “springboards” that screen, mentor and showcase promising academic entrepreneurs to potential investors.

- ❖ A number of U.S. universities have their own seed capital funds that invest in university-based entrepreneurs. Some funds build management capacity in enterprises in which they invest.
- ❖ Some universities also have commercialization funds designed to advance research to near-market stages.



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- ❖ Business plan competitions are popular mechanisms to mentor and showcase university entrepreneurs to potential investors.
- ❖ CEO's or Entrepreneurs-in-Residence can provide invaluable input and guidance.
- ❖ Networking opportunities may be the most important element – they facilitate invaluable interaction between entrepreneurs, service providers, and potential investors and customers.



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Local and State Governments: Policies & Programs to Support Startups

- ❖ State governments and sometimes local governments provide infrastructure to capture and nurture the growth of entrepreneurs – incubators and research parks, often located at universities, are common tools, and are only as good as the services they provide.
- ❖ Most state governments now have some form of venture capital fund, some are aimed at university technologies, others are more generally intended to support promising startups.
- ❖ State Fund-of-Funds are increasingly popular tools for leveraging private venture capital with state monies.

- ❖ State tax incentives to encourage venture capital investments and more recently, angel capital investments are increasing.
- ❖ State technology, commercialization and economic development organizations are important in providing a variety of services to entrepreneurs and linking them with private service providers.
- ❖ Seed capital and angel capital networks are growing at the state and local levels and fill a critical early-stage gap not filled by venture capital firms.



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National Government: Policies and Programs to Support Startups

- ❖ At the national level, the SBIR program continues to be the most important program to support startups and technology SMEs. In FY 2006, \$2,3 billion was spent on SBIR awards, with DOD accounting for almost half of all funding.
- ❖ Depending upon the agency, Phase I funds up to \$100,000 and Phase II, up to \$750,000.
- ❖ DOD Phase II Enhancement Program (or Phase II Plus) matches up to \$500,000 of non-SBIR money – private sector or government acquisition funding – for one year.



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- ❖ If Phase II funds are matched by non-federal funds, DOD “Fast Track” will fund \$30.000 - \$50.000 between Phase I and II.
- ❖ Recently, the SBIR program has placed more emphasis on commercialization and some agencies have modest initiatives such as the NIH Commercialization Assistance Program that involves workshops, mentoring, and a Life Sciences Showcase.
- ❖ NSF also is experimenting with a new mentoring initiative and through its “Match Maker” links accredited investors to SBIR firms.

Putting Programs and Policies Into Perspective

- ❖ Except for the SBIR program, most programs to support SMEs and startups are at the local and state levels.
- ❖ Government programs (except for SBIR) are a small fraction of total activities – most support for startups comes from the private sector including the venture capital community. VCs are critical in building management capacity and addressing market needs, in addition to financing startups.



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Prescriptions for Success

- ❖ Identify and strengthen “core competencies” in research – excellent research feeds the pipeline for technology startups.
- ❖ Coordinate activities between research, technology transfer, commercialization and entrepreneurial development.
- ❖ Encourage and support networking among entrepreneurs, service providers, and potential investors.

- ❖ Support and “incentivize” seed capital and early-stage investments and encourage management capacity building as part of the investment process.
- ❖ Use public monies to leverage private investments.
- ❖ Build management capacity in startups/SMEs by identifying and supporting business services, mentors, entrepreneurs-in-residence, and enterprise forums.



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- ❖ Educate policy makers on the costs and benefits of support for startups/SMEs, and manage expectations – these initiatives should not be promoted as “cure alls” or “quick fixes”.
- ❖ Stimulate and support start-ups/SMEs by building on indigenous strengths, cultivating entrepreneurial champions, and understanding that ultimate success requires patience and persistence.



Support Mechanisms for Small Businesses

Download From IA's Website:

- ❖ *Accelerating Economic Development Through University Technology Transfer and Commercialization*
- ❖ *Partners on a Mission: Federal Laboratory Practices Contributing to Economic Development*
- ❖ *Developing High-Tech Communities: San Diego*



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