



grow me state

Initiative Briefing Book

95th Missouri State General Assembly

Steering Committee

The following members of the statewide Steering Committee commissioned the Grow Me State study on Missouri's need for risk capital and developed these recommendations:

Jim Anderson, Springfield Area Chamber of Commerce
Jim Baker, Missouri State University
Brian Clevinger, Prolog Ventures
Jay De Long, St. Louis Regional Chamber & Growth Association
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Grow Me State Mission

The mission of Grow Me State Initiative is to create coordinated and sustainable state policies to encourage technology-based economic development, including these legislative components:

- Angel Tax Credit program to bridge the gap in equity funding
- Proof of Concept Program and Seed Capital Revolving Fund designed to improve the conversion rate of R&D and innovation into commercially viable products and Missouri-based entrepreneurial firms
- Increased funding for the Missouri Technology Corporation (MTC) to continue two existing capital formation programs and staff

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EXECUTIVE SUMMARY

A recently commissioned research report by Dr. Mark Parry, of UMKC Bloch School, identifies some startling facts about Missouri's highly ranked research capacity, Missouri's lower ranked entrepreneurship levels, and Missouri's declining ability to attract equity/risk capital. While this is not unique to Missouri, over the past decade, other midwestern states have recognized their own relative weaknesses and begun to proactively address these commercialization gaps. Their efforts have fostered their state's economic growth, have lured Missouri entrepreneurs and companies away, and precipitated the relative decline of Missouri's competitive position.

Building a competitive tech-led economy requires a number of variables. Missouri has some advantages over other states in the Midwest - namely its ability to attract talented researchers who in turn have competed and won large amounts of federal research dollars. Missouri, by most indicators and studies, has unfortunately not been able to optimize these assets in the most recent past, by converting research into commercialization (i.e. new businesses, jobs).

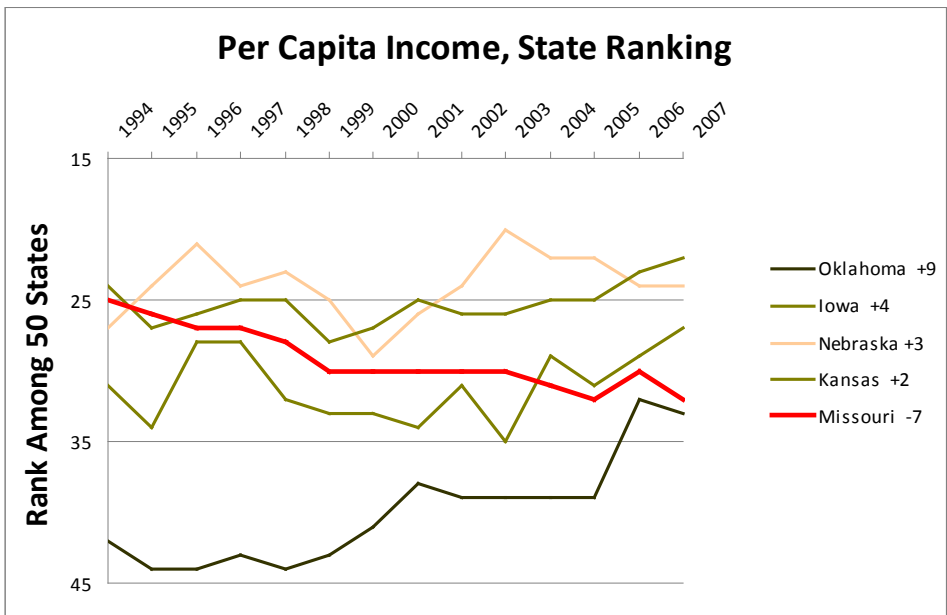
The Bloch School's Report, and additional external research, has led the Grow Me State Steering Committee to the conclusion that the State must develop a technology-led economic development strategy and aggressively pursue its objectives. In addition, there are particular pre-seed and seed stage funding gaps that can and should be immediately addressed. The GMS Steering Committee recommends the following slate of programs, proven to be effective, to the 95th General Assembly (totaling \$17,250,000):

1. **Angel Tax Credit**, \$5 million, *requiring enabling legislation and appropriations*
2. **Two New Technology Financing Programs**, \$11.25 million, *requiring enabling legislation and appropriations*
3. Funding for the **Missouri Technology Corporation** (\$1,000,000 total) to develop a deeper tech-led economic development capacity and to continue two programs funded by the Lewis & Clark Discovery Initiative, which will run out of money.
 - a. **Staff Funding** (\$200,000) to provide for a two additional staff and project money to intergrate new and existing progams and begin a strategic planning process.
 - b. **SBIR Bridge Loan**: gap funding available only to companies who have won Phase I awards and are awaiting Phase II award decisions (\$500,000).
 - c. **Intellectual Property Management Fund** makes small awards to researchers to protect their IP, as the first step toward commercialization (\$300,000).

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IMPORTANCE OF TECHNOLOGY-LED ECONOMY

Over the past several years, the “Show Me State” economy has undergone a dramatic transformation as global economies become more driven by technology—through the creation of new industries and the application of technology in traditional industries. Regions must have an economic base composed of firms that constantly innovate and maximize the use of technology in the workplace in order to compete in a global economy. Over the past 15 years,



Missouri has struggled to keep pace. Technology-led economic development is the approach used to help create a climate where that new economic base can thrive. When traditional economies fail to make that shift and remain

competitive with skilled, high-wage jobs, the outcomes can be measured in declining tax revenues, education attainment levels, per capita income levels and various other characteristics that can be attributed to a lower standard of living.

Based on the experience of tech-based economies like Silicon Valley, Research Triangle, and Route 128, it is generally acknowledged now that the following elements are required for a tech-based economy:

- An intellectual infrastructure, i.e. universities and public or private research laboratories that generate new knowledge and discoveries
- Mechanisms for transferring knowledge from one individual to another or from one company to another

- Physical infrastructure that includes high quality telecommunications systems and affordable high speed Internet connections
- Highly skilled technical workforce
- Sources of risk capital
- Quality of life, and
- Entrepreneurial culture

Universities and other research institutions that are generating new knowledge and discoveries can be extremely important contributors in developing Missouri's technology-based economy. And they have provided Missouri a solid research foundation from which to build. But, while a necessary ingredient, it is not sufficient to improve the economy. For a state or region to capitalize on the presence of such "technology generators," there must be mechanisms that move innovation to the marketplace.

CHALLENGES IN MISSOURI

Bringing innovations to market is not something that happens easily in Missouri—or very many places—for a number of reasons. First, university-developed technologies often require that additional work be conducted to determine whether the technology has commercial potential, but there is little funding available for such proof-of-concept activities. In most regions of the country, and particularly in risk-averse traditional economies, it is difficult to find funding to advance the commercialization of technology. To commercialize University system owned-IP at the highest value—and sometimes to license it at all—it is commonly necessary to perform additional studies, sometimes involving animal trials or, in the case of engineering discoveries, a working prototype. Often, it is also necessary to surround the original discovery with additional patents and protections. This kind of work is usually conducted by faculty members (although sometimes by outside consultants) but at the direction of the professional staff in the university licensing office. Innovations are almost never fundable through conventional, peer-reviewed federal programs and, if innovation is to take place at all, it must be separately funded under a different set of criteria focused mainly on economic development.

Second, even if commercial potential can be demonstrated, investors and customers are often unwilling to assume the risk that is associated with new technology and small businesses. While these new companies are often the most innovative, they generally lack the financial resources necessary to identify and promote new technologies.

Since the passage of the Bayh-Dole Act of 1980 that allowed universities to own patents arising from federally-supported R&D, universities have struggled with how best to transfer university-

generated technology to businesses. Traditionally, universities have used licensing to accomplish this.

Today, more and more universities and state institutions are directly involved in business start-ups and commercialization. They are taking an active role in seeking out entrepreneurs and companies as partners and, in some cases, spinning off new companies. Programs have been started throughout the public sector to help researchers and entrepreneurs transform ideas or innovations into products ready for manufacturing, marketing and distribution. Such programs assist inventors and entrepreneurs with patent applications, engineering and testing and development of business and marketing plans. Incubators are an example of how Missouri has succeeded in creating economic impact from State investment. Incubators link entrepreneurs with sources of business and management expertise and help them access capital by linking firms with sources of risk capital, including both angel investors and venture capital funds, or by providing capital directly.

Academic-based programs may operate as a unit of a university, but increasingly universities are creating free-standing commercialization centers that seek to create start-up companies from university-developed technologies. The University of Illinois, for example, created a wholly-owned commercialization company, Illinois Ventures LLC, to work with campus technology transfer offices, faculty and outside entrepreneurs to create start-up companies to which the university can license intellectual property. The same is true at several Midwestern universities.

Going a step further, it is increasingly common for technology commercialization programs to operate funds that provide small amounts for proof-of-concept activities. Such commercialization funds grant awards ranging from \$50,000 to \$250,000. These funds are used to undertake due diligence to determine whether there is any commercial value in the new technology. If sufficient value is determined, the university will institute Intellectual Property (IP) procedures. The intent of this type of fund is to discover additional commercial opportunities unforeseen by the researcher, who may be untrained in examining market opportunities. The end result of a technology commercialization award is a prototype, further research that helps determine market value, or other deliverables. Some commercialization programs may also provide pre-seed or seed funding to start-up companies.

The objective of university commercialization programs is to identify university-developed technologies and refine that technology to the point at which a commercial partner is found or a company is created to market it. The goal is to advance ideas beyond the proof-of-concept stage, thus reducing risk for investors and customers. These programs often include commercialization funds that seek to address the capital gap between basic science, which is

most often funded by the federal government, and the development of technology with commercial potential.

KEY SUCCESS FACTORS

According to a recent Kauffman Foundation research report, managers of commercialization programs say that having sources of flexible funding, or capital formation, is a key factor in being able to move technology into the marketplace. This is true of entrepreneurs as well. As discussed above, there are few, if any, sources of very early-stage funding to assess the commercial potential of a new discovery, or overcome proof-of-concept obstacles. A small amount of funding that does not require a repayment is usually needed to conduct testing, to validate the technology and to determine whether it meets a market need at a competitive price.

A second critical factor in the success of commercialization programs is the ability to connect university inventors with investors and commercial partners. Managers of commercialization programs report that their primary role, and the factor that will determine how successful they will be, is their ability to make connections: connecting researchers and promising technology with the entrepreneurs who have the ability to commercialize it; then connecting those entrepreneurs with sources of start-up capital.

A final factor that innovation centers like the Deshpande Center at MIT have identified as critical to successful commercialization is the ability to tie research to market needs. Encouraging interactions between university researchers and industry can help to ensure that researchers are aware of both developments in the marketplace and the technological challenges facing specific industries. If this knowledge drives their research, it is much more likely to lead to discoveries with commercial potential.

In some areas, like Silicon Valley, Research Triangle, and Route 128, the past 20 years of successful commercialization has developed experienced practitioners and entrepreneurs who can then lower the costs and accelerate the time-to-market of their next high risk venture. In Missouri, like much of the US, these “serial” entrepreneurs are rarer, and we must find alternatives to pure “market-driven” commercialization. Ways to support these ventures include, investment incentives, risk sharing, or cost reduction programs to help the fledging new businesses succeed.

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Missouri's Need for Risk Capital: An Assessment and Recommendations

by Mark Parry, Ph.D.

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(Complete study provided in Appendix)

CAPITAL FORMATION RESEARCH FOR MISSOURI- EXECUTIVE SUMMARY

Eureka: “I found it”. Our scientific researchers are performing well. In numerous fields - animal health, IT, biologics, plant science, nanotechnology, genomics, advanced manufacturing, etc. - Missouri researchers are winning competitive grants, curing disease, alleviating pain, creating alternative energies and increasing crop yields to feed the world. As a State, Missouri consistently ranks 12th in NIH grants and ninth in Federal Research & Development (R&D). This demonstrates the impressive research performance of our academic institutions. We support continued investment into research and research capacity at our public universities.

Vendo: “I sold it”. But further down the pipeline, when the research is to be translated into products, and products into businesses, the Bloch School Report reveals Missouri has critical pinch points that have prohibited us from seeing the benefits. For research to have value, to improve people’s lives and bring a Return on Investment (ROI) to the State, it must be deployed through effective technology commercialization and new company formation, and their corresponding high-wage job growth and wealth creation. The Bloch School Report spotlights the State’s under-developed capacity to turn our outstanding research into tangible value: life improving products and wealth creation.

MISSOURI IN 2004*: RESEARCH DOLLARS IN VS. INNOVATION OUTPUT

(Table entries are Missouri's rankings among the 50 states)

Federal R&D Grants	NIH Grants	Invention Disclosures	University Start-Ups
9	12	20	27

*in 2005 Missouri fell to #23 in Invention Disclosures & #30 in University Start-Ups

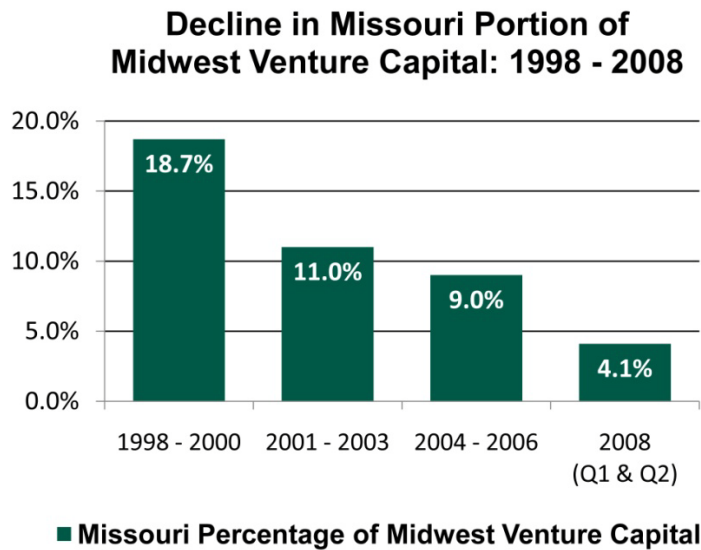
The report also referenced the Kauffman Foundation’s *State New Economy Index* (full report available at the www.GrowMeState.org website), which provides a perspective on how states compare in entrepreneurial resources and activities. Missouri dropped from 28th in 2002 to 30th in 2007, with the decline attributed in part to our reduced “innovation capacity,” which

includes patents, high-tech jobs, scientists and engineers, industry investment in R&D, and venture capital. *This past November, the 2008 report was published and indicates Missouri has fallen further behind from 30th last year to 34th now.*

Capital Formation: Funding for Missouri-based start-up companies

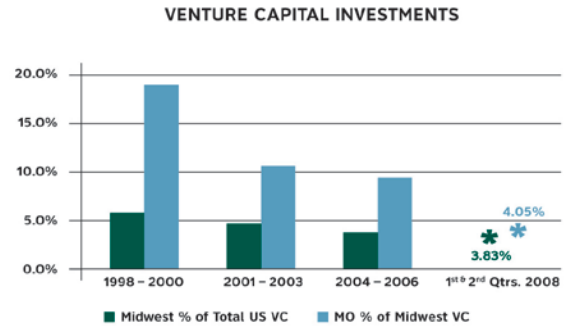
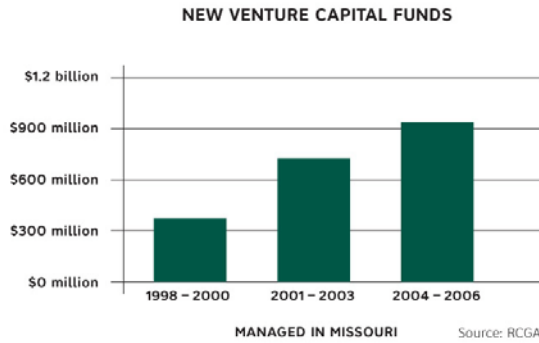
The report also discovered one startling finding. Despite the dramatic **increase** of venture capital (VC) funds physically located in Missouri, there has been a **downward** trend of venture investment into Missouri’s entrepreneurial firms over the past ten years. This is an indicator that Missouri is not growing enough new technology start-ups and not maturing existing ones to the next level of growth to attract venture capital investors.

From 1998 to 2000 the Midwest was attracting roughly 6% of all venture capital invested in the U.S., and Missouri was attracting nearly 19% of all VC invested in the Midwest. From 2004 to 2006 the Midwest’s portion of national VC shrank to 3.5%, while Missouri’s share of that portion dropped to 9%. The first two quarters of 2008 are not any more promising, with Missouri’s share of the Midwest further declining to 4% as the Midwest’s share stays the same. This means that Missouri’s portion of national VC decreased more than seven times over the past ten years, from 1.12% to 0.156%.



Recent 2008 data, released in January 2009, indicates that this trend is continuing, particularly in life science investment where Missouri has its greatest research strengths. In 2008, Missouri attracted only \$50 million in life sciences VC investment, while Michigan was twice that, Ohio had more than three times that (\$189m) and Minnesota received \$330 million – six times as much (*Midwest Healthcare Venture Report*, see reference material).

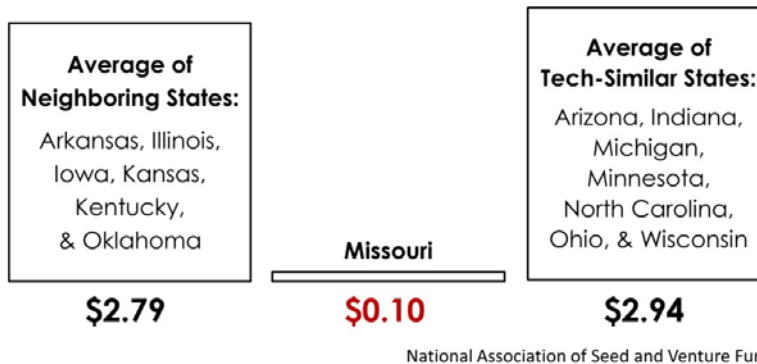
What is more startling is that Missouri companies are experiencing this decline in venture investment over the same ten year period in which a substantial amount of venture capital has been accumulated by Missouri venture capital partners for investing. Surprising, this “capital under management” here in Missouri, is invested in the states around us rather than in our state.



What Other States are Doing

The report also shows where Missouri stands compared to other states with capital formation programs, based on 2006 data available. States geographically surrounding Missouri, or “Neighboring States,” spend an average of \$2.79 per capita on capital formation programs. States identified as being technologically similar to Missouri, or “Tech-Similar States,” spend an average of \$2.94 per capita on capital formation. In stark contrast, Missouri only spends 10¢ per capita on these programs.

2006 COMMITMENTS TO CAPITAL FORMATION PROGRAMS



These numbers illustrate the severity of the delta between what Missouri does in Capital formation to prepare companies for venture capital, and the other states. The Grow Me State Initiative proposes to work towards being equal and competitive with surrounding and tech-similar states. However, the longer this gap continues, the more companies will leave Missouri and bring jobs to other states.

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STEERING COMMITTEE LEGISLATIVE RECOMMENDATIONS

The Grow Me State Initiative is a legislative recommendation designed to provide Missouri-based, high-tech, start-up companies with direct pre-seed and seed financing and early stage risk capital to stimulate additional investments from private sources. Perhaps the most decisive factor in whether a new technology venture will succeed is whether that enterprise is able to secure adequate funding at critical junctures in its development.

Grow Me State Initiative recommendations:

- **Angel Investment Tax Credit**, encouraging more private investment into start-up Missouri companies (\$50,000 maximum investment available for credit; \$5 million annual cap).
- **“Proof of Concept” Program**, competitively awarding 25 grants annually at approximately \$50,000 each, to advanced technology companies needing support to refine a prototype, hire core teams, purchase specialty equipment, or create marketing materials. (\$1.25 million per year)
- **Seed Capital Co-Investment Revolving Fund**, externally contracted and professionally managed equity fund, co-invests into advanced technology businesses, making up to 20 investments ranging from \$250,000 to \$750,000 per year, in rounds of up to \$1.5 million, for developing the IP, building prototypes, implementing business operations, and securing the management team (\$10 million per year, committed for five years).
- **Funding for Missouri Technology Corporation (\$1,000,000):**
 - **SBIR Phase II Bridge Loan Program** lends up to \$75,000 to SBIR Phase I Award winning companies to continue their prototype development, while they wait on Phase II funding from federal award granting agencies (Continuation Funding of \$500,000).
 - **Intellectual Property Management Fund**, started in 2008, provides financial assistance to help pay legal costs for intellectual property work, up to \$15,000 (Continuation Funding of \$300,000).
 - **MTC Staffing** for integration of programs and strategic planning work for Missouri.

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GROW ME STATE INITIATIVE - LEGISLATIVE PROGRAM ELEMENTS

ANGEL CAPITAL TAX CREDIT (NEW)

To encourage more private investment into high tech start-ups, the **Missouri Angel Tax Credit** would create a tax credit for accredited investors and certain partnerships (including angel investment pools if all are accredited investors) that invest cash or cash equivalents at an arm's length in a qualified small business (as defined by the Small Business Act). An angel investment pool is a group of investors who come together to pursue common investments.

To qualify for the tax credit, an investor would be required to hold the investment for at least three years. The maximum amount eligible for the credit is \$50,000 per investment and a total of \$100,000 per qualified individual investor. The program would have a \$5,000,000 cap for FY'10.

Importance:

The **Missouri Angel Tax Credit** was developed to fill a gap in current equity funding. Generally, venture capitalists invest a minimum of \$6 to \$7 million in mature companies. Venture capitalists have become more risk adverse and tend to limit their investments to certain high-growth sectors of the economy, such as life sciences and software.

By contrast, angel investors take more risks and invest locally or regionally in the earlier stages of company formation. However, the maximum amount invested by angel investors typically is between \$500,000 and \$1 million. Thus, there is currently a substantial gap in equity funding between angel investors (early stage) and venture capitalists (later stage).

This bill addresses the equity gap by encouraging new accredited investors and current accredited investors to increase equity investments in certain qualified small businesses. A federal credit is under consideration, and it would be the first of its kind. That legislation is the result of the work of a nine person panel of experts, which included Bruce Gjovig, director of the University of North Dakota Center for Innovation.

What it accomplishes:

Accredited investors would be eligible to receive a **30% tax credit** (40% in rural and distressed areas) for investing in a qualified small business. The investor would be required to hold the investment for at least three years. The maximum amount eligible for the credit is \$50,000 per investment and a total of \$100,000 per qualified individual investor.

Statistical Impact:

According to the Center for Venture Research at the University of New Hampshire, angel investments totaled **\$26.0 billion** in 2007, a 1.8% increase from the previous year. Software accounted for the largest industry sector of investment at 27%, followed by healthcare services/medical devices and equipment at 19%, and biotechnology at 12%.

*The National Governors Association's recent report listed **18 states** that had an angel investment tax credit program, and also described **two other states** that had similar programs.*

State	Tax Credit (TC) Program	Rate	Cap
Arizona	Angel Investment TC	30%	\$20 million over 5 years
Hawaii	High Tech Investment TC	100%	None
Indiana	VC Investment TC	20%	\$12.5 million per year
Iowa	QB Investment TC	20%	\$10 million over 3 years
Kansas	Angel Investor TC	50%	\$2 million per year
Louisiana	Angel Investor TC	50%	\$5 million per year
Maine	Seed Capital TC	40%	\$20 million aggregate
New Jersey	High Tech Investment TC	10%	None
New Mexico	Angel Investment Credit	25%	\$750,000
North Carolina	QB Investment TC	25%	\$7 million per year
North Dakota	Seed Capital Investment TC	45%	\$2.5 million per year
Ohio	Tech Investment TC	25%	\$20 million aggregate
Oklahoma	Small Business Capital Credit	20%	None
Oregon	University VC Funds	60%	\$14 million aggregate
Vermont**	Seed Capital Fund	10%	\$2 million aggregate
Virginia	QB Investment Credit	50%	\$3 million per year
West Virginia	High Growth Business Investment	50%	\$2 million per year
Wisconsin	Angel Investor TC	25%	\$3 million per year, \$30 million aggregate
Kentucky*	Kentucky Investment Fund Act	40%	
Michigan*	Angel Investor Incentive	N/A	

*Kentucky and Michigan were described in the report, but not listed as an angel tax credit in the NGA Appendix F. This is most likely because Kentucky's tax credit does not apply to a single investor; rather, it applies to a fund of multiple investors investing in multiple companies. Michigan does not offer angels an income tax credit; rather, it offers a deduction from capital gains income as an incentive for angel investing. (National Governors Association. (2008) *State Strategies to Promote Angel Investment for Economic Growth, Appendix F.*)

**According to research by Jeffrey Williams of Belmont University, Vermont’s 10% Seed Fund tax credit, though still “on the books,” is for all practical purposes nonexistent. Instead, Vermont currently has an Angel Venture Investment Capital Gain Deferral Credit that provides up to a 60% deferral of capital gains on investments of up to \$200,000. His paper did not investigate all states, and other states may have since created new programs and eliminated others. (Williams, J. (2008) *Tax Credits and Government Incentives for Angel Investing in Various States*. Belmont University)



Business Leaving Missouri - Case Study

OsteoGeneX, Inc, founded in 2006 by a Missouri researcher to develop drugs to strengthen bones, and initially located in Kansas City, Missouri, moved to Lawrence, Kansas in 2007 to take advantage of:

- A Kansas Technology Enterprise Corporation (KTEC) \$35,000 stipend from KTEC to help start her business.
- \$130,000 in research vouchers by the Kansas Bioscience Authority as a match to the awarded NIH/NIAMS SBIR Phase I.
- A Kansas Angel Tax Credit for 50% of their investment in OsteoGeneX for investments up to \$200,000 per year.

Success Stories

According to the Center for Venture Research at the University of New Hampshire, angel investments contributed to the creation of **200,000 new jobs** in the U.S. in 2007, or 3.3 jobs per angel investment. Incentives for start-up companies are critical during their initial stage of development as there is a great deal of risk associated with the new ventures. There are several examples of how incentives in other states have encouraged growth and success in high-tech companies that provide economic development and jobs for the state.

The following is a complete listing of all Angel deals funded through the formal Angel groups in Missouri, since they were created, as reported by Centennial Investors and St. Louis Arch Angels:

All Investments of the St. Louis Arch Angels, Through 01/09

<u>City/State</u>	<u>Company Description</u>
St. Louis, MO	Biofuel cells.
St. Louis, MO	Large scale application software.
St. Louis, MO	Payment processing software.
St. Louis, MO	Alzheimer drug.
St. Louis, MO	Computer game network.

St. Louis, MO	Content security hardware.
St. Louis, MO	Building maintenance information system.
St. Louis, MO	Technology – based fashion.
St. Louis, MO	Drug discovery company.
St. Louis, MO	RFID technology.
St. Louis, MO	Carbon credit tracking system.
St. Louis, MO	Screening test for pregnant patients at high risk for preterm delivery.
St. Louis, MO	Educational game programs.
Columbia, MO	Digital newsroom in partnership with the Missouri School of Journalism.
St. Louis, MO	Safe and effective products for higher yielding agriculture.
Boca Raton, FL*	Spinal technology innovator.

Companies currently in due diligence:

- Targeting a unique tumor metabolism weak spot, KM-4419, representing an entirely new cancer drug class.
- Pain-free atrial ICDs (implantable cardioverter defibrillators) are breakthrough therapy for atrial fibrillation and flutter.

All Investments of the Centennial Investors, Through 3/15/08

<u>City/State</u>	<u>Company Description</u>
Columbia, MO	A technology that detects lameness in horses.
Columbia, MO	An organic nasal wash system.
Columbia, MO	A company with plans to manufacture a ceramic fuel-cell generator.
Columbia, MO	A specialty retail store (helped it grow its online business).
Lenexa, KS*	A technology to electronically detect inner ear fluid.

**Would not be eligible for proposed Angel Capital Tax Credit*

“PROOF OF CONCEPT” LOAN PROGRAM

The Proof of Concept program is designed to help advanced technology companies with high-growth potential reach their next stage of business funding.

How does it work?

- Approximately 25 awards of \$50,000 each would be available annually in the form of forgivable loans (**\$1.25 million per year**).
- Some companies will fail, but most will succeed. When they do, companies are required to repay the loan within five years, with a **minimum repayment of two times the original amount of the loan**. These paybacks will be rolled back into the program for future awards, enabling the program to become self-funding.
- Companies **must also leverage one dollar of private investment for every dollar of state financial assistance**.
- To be eligible companies **must be classified as a small business** and 50% of employees and assets must be located in Missouri. Employee **salaries must be 35-40% higher than the average county wage**.

Importance:

Early stage, "pre-seed" funding is in the shortest supply, and is most difficult for promising young firms to obtain. Programs of this nature are a critical component of nearly every neighboring states' tech-based economic development programs. This one is particularly modeled after the success of Oklahoma's OCAST "Proof of Concept" program. It lends matching money to the founders of a start-up to demonstrate enough "traction" that will encourage outside investment.

What it accomplishes:

The **"Proof of Concept" Loan Program** award requires a minimum one-to-one match with new cash equity and is used for anything from refining a prototype, hiring people, purchasing equipment, to creating marketing materials. This cash must be in-hand or committed in writing by private investors or lenders to be released coinciding with receipt of Program funds.

Repayment provisions shall require a minimum repayment of two times the original amount funded by the Program. The amount of the repayment shall be determined in part by the degree of perceived risk and the anticipated length of time for payback for the project under

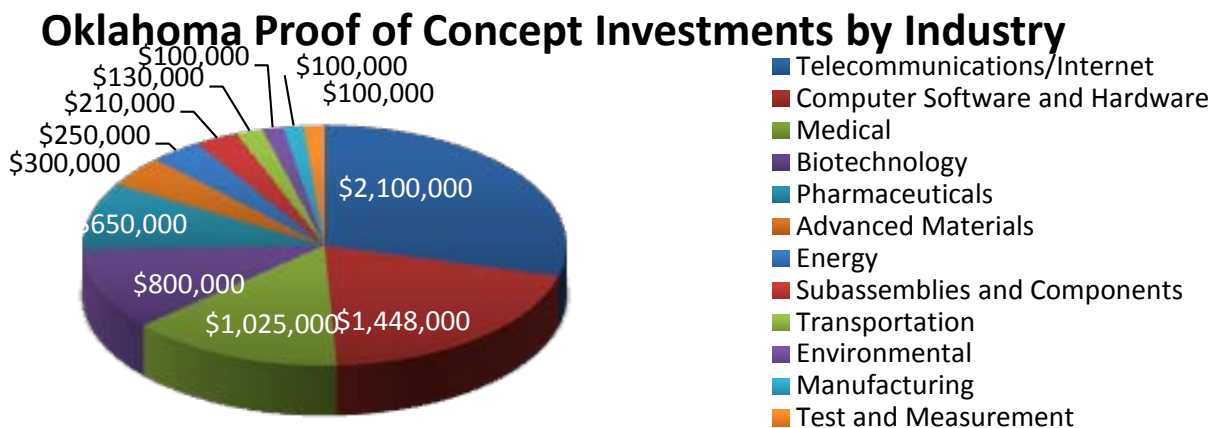
application. The repayment amount may be prorated if repaid prior to five years. Eligible firms must be technology-based, at the early development stage and have the potential for significant, high performance growth. They must also exhibit substantial “value added” per employee, wage levels 40% higher than average, and other indicators related to the generation of wealth for Missouri's economy.

The business must be classified as a small business based on SBA guidelines, and at least fifty percent of the employees or assets must be located in Missouri. Advanced Technology is defined as any state-of-the-art material, design, process or know-how:

- Animal Health
- Biotechnology
- Information technologies
- Communications technologies
- Aerospace
- Electronics and related fields
- Robotics
- Medical devices and instruments
- Telecommunications
- Plant Sciences
- Energy
- Materials

Statistical Impact:

As part of the Technology Transfer Act of 1998, the Legislature and Governor of Oklahoma authorized the Oklahoma Center for Advancement of Science & Technology (OCAST) to design a program to address this need. Funding is awarded competitively on a first come basis for promising ventures that demonstrate potential for extraordinary high growth and requires dollar for dollar investor match. Program designers expected a venture survival rate of 50% after 12 months and 25% after 24 months. Thus far, 80% of the businesses have survived. Additionally, the amount of investment leveraged by the program awards exceeds expectation. (OCAST 2008 Impact Report provided in Appendix).



Designers originally hoped investors would invest three dollars for each OCAST dollar. Thus far the awardees have garnered \$160 million, a leverage ratio of nearly 24 to 1. Furthermore, 14

companies of the 45 recipient companies since 2003 have made award repayments totaling nearly \$1.7 million. ***This translates to \$30 in private capital raised for every net dollar expended on the program***, which takes into account the \$8 million allocated, \$1.5 million in management fees, and \$3 million from repayments, totaling \$6.5 million in net expenditures (i2E, Inc., 2008).

Success Story:



Brushfire Technologies was founded by Teddy Wyatt in early 2005 to develop network security products such as FireBreak, which blocks hackers by monitoring all system traffic.

Brushfire received \$150,000 in Proof of Concept loans from OCAST and has since received \$220,000 in Department of Defense SBIR Phase I money and \$700,000 in SBIR Phase II money, for a total of \$920,000 in outside funding. Wyatt credits the Proof of Concept program with adding credibility to his idea and business at a critical early stage.

“The OCAST programs, [Proof of Concept] in particular, have been a crucial piece of Brushfire’s product development funding.

...by allowing us to add key commercialization features to the product above what we’re able to accomplish with the SBIR funding. This puts us in an excellent position to enter the commercial market with our product. Commercial revenue is necessary to attract the outside investment necessary to complete the product and build the support infrastructure for revenue growth and profitability.

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Importance:

While venture capital is declining, “seed” funding is in very short supply in Midwest, and is a critical developmental stage that must be accomplished before most venture capital firms will invest. This **Seed Capital Co-Investment Revolving Fund** is modeled after other successful programs nationwide. It is primarily focused entrepreneurial, advanced technology companies with strong management teams, well-protected IP, and break-through solutions that provide/serve large, well-understood markets. Companies will meet the following criteria:

- 50 percent of employees and/or assets resident in Missouri
- Seed or start-up stage
- Innovative products and services
- Scalable solution that satisfies large markets
- Solid financial position with no significant outside debt or other negative conditions

Companies must demonstrate that they are potentially attractive to private co-investors. Economic development factors such as creating jobs with higher than average salaries that stay in Missouri are also important.

What it accomplishes:

This five-year fund anticipates making up to 20 investments from \$250,000 to \$750,000 per year in rounds of up to \$1.5 million (50% match). Investments will be determined by a traditional investment due diligence process that is timely, practical, and thorough. The use of funds is based on the company’s submitted business plan. They may include such activities as developing the IP, building prototype, market study, implementing business operations, identifying the management team, and securing the management team. It invests on the same terms as the professional investor in the deal and therefore expects the same return on investment. In this way, the fund’s return will continue to provide for future investment opportunities.

The **Seed Capital Co-Investment Revolving Fund** expects to invest in firms in the following Industries:

- Animal Health
- Biotechnology
- Information technologies
- Communications technologies
- Aerospace
- Electronics and related fields
- Robotics
- Medical devices and instruments
- Telecommunications
- Plant Sciences
- Energy
- Materials

Firms not eligible for seed funding by the program include:

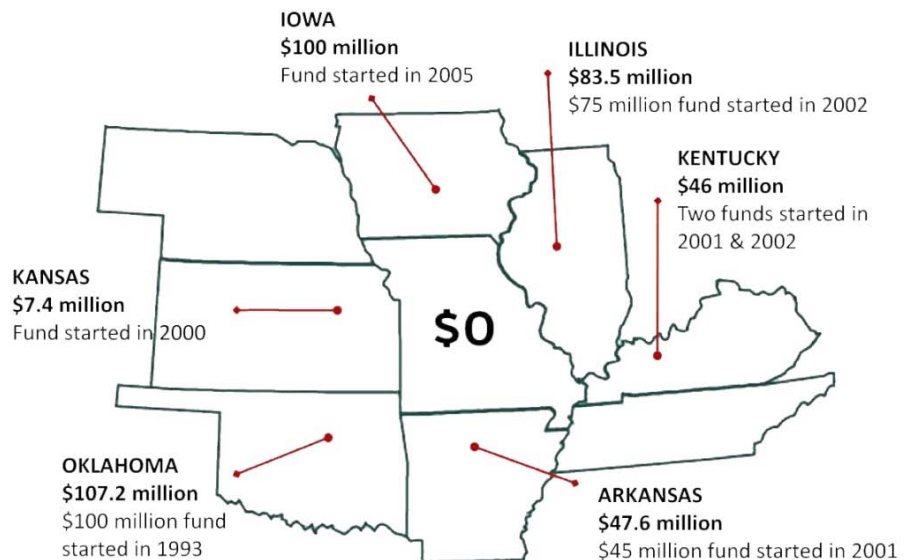
- Banking or lending
- Development, management, and investment companies
- Finance
- Insurance
- Mining
- Oil and Gas exploration
- Real Estate
- Technology or non-technology firms that do not have a proprietary product or service
- Wholesale and retail

Success Stories:

The program most similar to the intent of the Grow Me State’s **Seed Capital Co-Investment Revolving Fund** is the Maryland Venture Fund. It was created in 1994 as a state-funded seed and early-stage equity fund. It now invests in 25-30 companies per year on average, and as of its most recent report (2005) it had invested \$45 million and seen a portfolio return of more than \$57 million to the state. The 175 companies, which received investments from the fund’s portfolio have attracted \$1 billion in private equity. More than 1,500 jobs have been created with an average salary of \$70,000, which is roughly twice the state’s average salary. Its Enterprise Investment

Fund makes \$150,000-\$500,000, in what it calls “Series A” round, as co-investments with proven angel, venture or corporate partners (Maryland Venture Annual Report provided in Appendix).

Border States with State-Funded Seed & Venture Capital Funds



Source: NASVF, Feb. 2008

Statistical Impact:

Thirty states, including six states that border Missouri, have state-funded venture capital or seed capital funds. Several states started small funds in the 1980s and have recently created new funds and directed larger amounts of money to the programs. Combined, these thirty states have state-funded seed and venture capital investments of \$2.37 billion (National Association of Seed and Venture Funds {NASVF}, 2008).

State-Supported Seed Capital or Venture Capital Funds

investment capital of all state funds in millions*

ARKANSAS	\$47.6	COLORADO	\$23.0	CONNECTICUT	\$60.0
DELAWARE	\$8.0	FLORIDA	\$29.5	GEORGIA	\$18.0
HAWAII	\$31.0	ILLINOIS	\$83.5	INDIANA	\$70.0
IOWA	\$100.0	KANSAS	\$7.4	KENTUCKY	\$46.0
LOUISIANA	\$38.0	MAINE	\$12.0	MARYLAND	\$30.0
MASSACHUSETTS	\$35.0	MICHIGAN	\$205.0	MINNESOTA	\$16.0
NEW JERSEY	\$65.0	NEW MEXICO	\$536.0	NEW YORK	\$20.0
NORTH DAKOTA	\$43.0	OHIO	\$212.0	OKLAHOMA	\$107.2
PENNSYLVANIA	\$68.0	RHODE ISLAND	\$7.0	SOUTH CAROLINA	\$48.0
TEXAS	\$290.0	UTAH	\$106.0	VIRGINIA	\$9.0

**Investment capital = total capital under management, meaning all monies available for investment and monies currently invested*

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MISSOURI TECHNOLOGY CORPORATION PROGRAMS:

The Missouri Technology Corporation (MTC) is a private not-for-profit corporation created by the Missouri General Assembly in 1994 to lead the state's efforts in technology-based economic development. The organization focuses on helping individuals and companies transfer new discoveries to the marketplace, creating high tech jobs for Missourians.

SBIR PHASE II RECIPIENT BRIDGE LOAN PROGRAM (EXISTING)

Importance:

Many high-tech companies who have received Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Phase I grants have the risk running out of money while they are waiting for their Phase II grant applications to be approved. The biggest gap facing entrepreneurs typically occurs between the completion of the Phase I work and the start of the Phase II project, usually 3-4 months. The Phase I/II Bridge Loan program allows an entrepreneur to request up to a \$50,000 loan to support research activities. This lull occurs at a time when many start-up companies are at great risk of failure, or being lured away to other states with incentive packages.

What it accomplishes:

In order to alleviate the stress of the funding gap, MTC, in partnership with the Missouri Small Business and Technology Development Centers, approves forgivable bridge loans to companies which enables the company to continue working until their Phase II grants are received and then able to repay the loan. If the company does receive the Phase II money then they must pay back the loan with interest. If the company does not win the award then the loan is forgivable.

An infusion of \$500,000 in state funding is recommended to allow the SBIR loan program to continue.

Success Stories:

The bridge loan funding began in the fourth quarter of 2008 and given only if the SBIR Phase II proposal is not successful with the federal agency. If the proposal is funded, the bridge loan must be repaid to MoTIP.

“Our goal with this funding is truly to help the entrepreneur bridge the funding gap that often occurs in the middle of the commercialization process,” said Paul Rehrig, counselor at the University Center for Innovation and Entrepreneurship in Columbia. “The repayment of the loan ensures additional funding for future loans and in essence is double return on investment.”

The first three recipients, all federal research grant awardees:

- Cervimark, founded in 2004 and is a medical diagnostics company that is developing a screening test for the prediction of pregnancies at high risk for preterm delivery.
- VirRx, a biotechnology company founded in 1999 and its primary mission is to design, construct novel drugs to treat many different forms of human cancer. They have taken a common cold virus, named adenovirus, and changed some of its genes such that it will attack and destroy cancer tumors without harming normal tissues in the body.
- Iconic Health, founded in 2005 and its primary mission is to improve access, quality and efficiency of mental health care.

Importance:

The IP (Intellectual Property) Management Fund was recently established to help Missouri-based start-up companies and universities pursue patent protection for promising new technologies. Many universities and companies do not have the resources for filing appropriate patent protections for all of their ideas. This makes them less attractive to venture capital companies, who prefer to invest in protected technology.

What it accomplishes:

The IP Management Fund will provide up to \$15,000 to assist with the preparation, filing, and prosecution of a patent application. These funds will help alleviate a significant bottleneck which exists in small company formation due to a lack of financial resources for filing appropriate patent protections. The fund is also available to Missouri Innovations Centers, Missouri Small Business Development Centers, and university technology transfer offices that assist start-up companies with licensing.

Who is eligible:

The fund is available to Missouri-based start-up companies working with Missouri Innovation Centers, Missouri Small Business & Technology Development Centers, and University technology transfer offices to commercialize their technologies. A Missouri business wanting to access the program, must first contact the appropriate Innovation Center or Small Business & Technology Development Center in their area (see page 2 for list). They must also complete the web-based application found at www.moipmf.org.

Success Stories:

The first awards are determined by committee in January 2009. Economic growth will be stimulated across Missouri as more technologies are protected through patents and other legal means which will attract additional venture capital and seed funding to flow to Missouri start-ups.

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