## **GOVERNOR'S INNOVATION TASK FORCE** SUMMARY REPORT

AUGUST 31, 2017



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## **EXECUTIVE SUMMARY: CONTEXT & GOALS**

- Entrepreneurship and innovation are important elements of Missouri's economy. New technology startups are critical to Missouri's competitiveness, the growth of its economy, and the creation of more high paying, good quality jobs. Furthermore, new business creation and expansion improves the resilience of the State's economy in the face of dramatic transformations driven by new technologies, new ways of working, and increasing competition from across the country and around the world.
- During the past decade, Missouri has made considerable progress in promoting innovation and entrepreneurship. It has begun to earn national recognition as a startup hub. As economies evolve, it is appropriate to take stock periodically and consider what steps might help the economy develop in the future.
- On June 19, 2017, Governor Greitens announced the creation of the Governor's Innovation Task Force (GITF) to help the State of Missouri define its strategy toward innovation, entrepreneurism, and new tech startups.
- The GITF was conducted under the auspices of the Hawthorn Foundation. The Hawthorn Foundation is a unique nonpartisan nonprofit in Missouri. Its membership includes stakeholders from across Missouri drawn from business, labor, academia, government, and civic economic development. Hawthorn is the only institution in the state that convenes these diverse stakeholders to help strengthen Missouri's economy and improve the effectiveness of its state government.
- Governor Greitens asked the GITF to consider an overarching question: "What should be the State of Missouri's priorities to help Missouri become the top performing state between the Coasts for innovation-driven economic outcomes in the next 5-10 years?" Potential actions by the State Government could include executive, legislative, regulatory, resource allocation, and convening or catalyzing action. The GITF was asked to focus on options where the State Government was uniquely positioned to have impact. The Governor requested the GITF (1) provide a fact-based perspective on the state of innovation and entrepreneurship in Missouri today, and (2) offer options with pro's and con's (rather than "watered down" consensus recommendations).
- Governor Greitens asked the GITF to complete its work by the end of August 2017 or fewer than 75 days from start to finish.
- The GITF adopted an innovative approach that relied upon individuals and institutions volunteering to help accomplish this goal, including:
  - A nonpartisan approach including members of the General Assembly and the Executive Branch
  - A steering committee of experts representing diverse perspectives from across Missouri to guide and inform the research effort
  - A series of five workshops held across state to engage 250+ experts to get their firsthand insights and recommendations
  - Surveys of ~2,000+ participants via the innovative Waggl tool
  - A core team of volunteers who helped coordinate the effort, conduct the workshops and Waggl surveys, research the fact base, and synthesize this final summary report

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## **EXECUTIVE SUMMARY: HIGHLIGHTS**

#### Why innovation matters?

Most simply, new business start ups are an engine that drives economic growth and job creation

#### How innovation works?

- The entrepreneur, with an idea to serve a customer need, stands at the center of innovation
- There is no single recipe for how communities of entrepreneurs succeed: every "ecosystem" is unique, with its own history and dynamics
- Successful innovation, however, has common ingredients: a positive entrepreneurial environment, access to ideas, talent, and capital, and a good brand that reflects and reinforces the other ingredients to make them all stronger through time

#### Where are we today?

- Missouri as a state currently ranks on most measures of innovation in the mid-tier when compared to the other 49 states
- However, such rankings should not diminish the positive momentum on many fronts that has deservedly earned Missouri in particular, the St. Louis, Kansas City,
   Columbia, and Springfield ecosystems regional and national recognition as an emerging new technology startup hub between the Coasts (e.g., 70% of Waggl survey respondents felt the climate for entrepreneurs and innovation in Missouri was improving)
- Furthermore, Missouri ranks in the top tier nationally on some important measures (e.g., 13<sup>th</sup> nationally in the rate of growth in capital available for startups)
- Potential major industry sectors?
  - Missouri possesses, moreover, signature strengths in important industry sectors that provide it the foundation for potential future competitiveness as well as national and even global innovation leadership: agriculture; biosciences; healthcare; IT & analytics; advanced manufacturing; transportation and logistics; and financial services
- Options for State Government?
  - The GITF offers for consideration 30+ options of potential state actions to help support entrepreneurs, innovators, and new tech startups in Missouri; the goal is for these options to inform and stimulate discussion of the State's future priorities



## ACKNOWLEDGEMENTS

- The Governor's Innovation Task Force was a volunteer effort. Around 2,000 individuals volunteered their time in some way to contribute to this effort. The effort was designed to develop a fact-base and offer options with which not every participant would necessarily agree. The Hawthorn Foundation is responsible for this final synthesis of the GITF's work. While not implying their responsibility for or their endorsement of any or all of the findings, the Hawthorn Foundation would like to express appreciation to the following who volunteered additional time to support the GITF effort:
  - The 33 members of the GITF Steering Committee who gave willingly of their time in interviews, workshops, and other research and problem solving;
  - The hosts who generously provided room and sustenance for the GITF workshops: the St. Louis Economic Development Partnership in St. Louis; the Kauffman Foundation and Kansas City Southern Lines in Kansas City; Veterans United in Columbia; the eFactory in Springfield; and Southeast Missouri State University in Cape Girardeau;
  - The 250+ individuals who invested 2 or more hours of their time to participate in one of the GITF's workshops;
  - The Waggl team that helped design and run the Waggl surveys that engaged ~2,000 participants from across Missouri and outside Missouri as well;
  - Tim Noonan who helped conceive of the GITF, facilitated a number of workshops, and invested significant time in the effort;
  - Donn Rubin of BioSTL who helped develop the initial concept for the GITF, facilitated workshops, and was a valued problem solving partner throughout, and members of the BioSTL team, Eric Gulve and Edward Hamati, who researched potential approaches to improve availability of capital;
  - The Kauffman Foundation team, led by Wendy Guillies, that invested a day sharing their latest research insights and problem solving on potential options;
  - Dedric Carter (Washington University) and Ken Olliff (St. Louis University) for convening leaders in higher education technology transfer and economic development from across the state, and securing the assistance of the Balsa Group to research other states' models of innovation and commercialization of academic research;
  - Bill Turpin of the Missouri Innovation Center for sharing insights as an entrepreneur and investor based upon his experiences from Silicon Valley to Columbia; and
  - The State of Missouri's Department of Economic Development that assisted with the development of the industry sector fact base.
- A special thanks does not convey adequately how much the volunteers on the GITF "core" working team contributed to the outcome. The GITF would not have been possible without the help of:
  - Accenture: Michael Gallagher, Managing Director of the St. Louis office and Deepak Goyal, Cole Donelson, Molly Goldstein, and Maggie Yancey who together played an essential role in developing the findings and then communicating them in this final summary report;
  - PWC: John Tvrdik, Managing Partner of the St. Louis office and Michael McNulty who helped jumpstart the effort and its research; and
  - St. Louis Regional Chamber: Andrew Smith who helped manage the GITF from the start, helped lead most of the workshops, and shaped its findings.

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## ACKNOWLEDGEMENTS STEERING COMMITTEE MEMBERS (1/3)

Name	Title	Organization
Rep. Kevin Austin	State Representative	Missouri General Assembly
Mr. Brant Bukowsky	Co-founder	Veterans United
Ms. Stacey Button	President and CEO	Regional Economic Development Inc. (REDI)
Dr. Dedric Carter	Vice Chancellor for Operations and Tech Transfer	Washington University in St. Louis
Dr. Wayne Carter	President & CEO	KC Area Life Sciences Institute
Ms. Keela Davis	Engagement Manager	Worldwide Technology
Mr. Sam Fiorello	соо	Donald Danforth Plant Science Center
Ms. Heather Fisher	Executive Director	Ozarks Small Business Incubator
Mr. Michael Gallagher	Managing Director, St. Louis	Accenture
Dr. Dan Getman	Consultant	Self-Employed
Ms. Wendy Guillies	President and CEO	Kauffman Foundation
Mr. Tom Hillman	Managing Director	Lewis and Clark Ventures
Mr. Dennis Lower	President and CEO	Cortex Innovation Community
Ms. Rebecca MacKinnon	Business Strategy Consultant	5th Dimension Strategies LLC
Mr. Dan Mehan	President and CEO	Missouri Chamber of Commerce and Industry



## ACKNOWLEDGEMENTS STEERING COMMITTEE MEMBERS (2/3)

Name	Title	Organization			
Ms. Maria Meyers	Executive Director	UMKC Innovation Center			
Ms. Lisa Mitchell	Managing Director	TechStars KC			
Mr. Chris Motley	Founder and CEO	Better Weekdays			
Ms. Lisa Nichols	CEO	Technology Partners			
Mr. Tim Noonan	Founder and CEO	NICE Glass			
Rep. Tommy Pierson Jr.	State Representative	Missouri General Assembly			
Sen J. J. Rizzo	State Senator	Missouri General Assembly			
Sen. Caleb Rowden	State Senator	Missouri General Assembly			
Mr. Donn Rubin	CEO	BioSTL			
Mr. Matt Simpson	Director of Research	Ozarks Technical Community College			
Mr. Andrew Smith	VP, Entrepreneurship & Innovation	STL Regional Chamber			
Dr. James Stapleton	Founder	Codefi LLC			
Mr. Bill Turpin	President and CEO	Missouri Innovation Center			
Mr. John Tvrdik	Managing Partner	PWC			
Ms. Kimberly Young	President	KC Animal Health Corridor			
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## ACKNOWLEDGEMENTS STEERING COMMITTEE MEMBERS – EX-OFFICIO (3/3)

Name	Title	Organization
Mr. Rob Dixon	Acting Director	Department of Economic Development, State of Missouri
Dr. Andrew ("Drew") Erdmann	Chief Operating Officer	Governor's Office, State of Missouri
Mr. Joel Walters	Director	Department of Revenue, State of Missouri



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## **HIGHLIGHTS OF TASK FORCE ACTIVITIES**



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## HIGHLIGHTS OF TASK FORCE ACTIVITIES WORKSHOP DETAILS

WORKSHOP (DATE)	HOST	
St. Louis (June 19)	STLOUIS ECONOMIC DEVELOPMENT PARTNERSHIP	
Kansas City (June 22)	Ewing Marion KAUFFMAN Foundation	
Columbia (July 19)	Veterans United. Home Loans	
Springfield (July 20)	Efactory	
Cape Girardeau (July 31)	SOUTHEAST MISSOURI STATE UNIVERSITY - 1873	
Source: GITF Workshops Copyright © 2017 Hawthorn Foundation. All rights reserve	ed.	Hawthorn 11

## HIGHLIGHTS OF TASK FORCE ACTIVITIES WAGGL SURVEYS

What	<ul> <li>Waggl is a survey/focus group tool to crowd source real-time sharing and voting on free-form answers</li> <li>One of the founders of Waggl is from Missouri</li> </ul>
Who	• Participants included academia, business, entrepreneurs, investors, government, civic organizations, and ecosystem partners from inside and outside Missouri
Waggl 1	<ul> <li>Focused on understanding current state and perception of innovation and State support of innovation in Missouri</li> <li>1550+ active participants</li> </ul>
Waggi 2	<ul> <li>Focused on identifying industry sectors where Missouri could be a global innovation leader</li> <li>670+ active participants</li> </ul>





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## WHY INNOVATION MATTERS **NNOVATION IS A MAJOR DRIVER OF ECONOMIC GROWTH**



U., S Chamber of Commerce Foundation

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Source: <sup>2</sup>Interviews with selected Innovation Task Force Steering Committee Members

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### WHY INNOVATION MATTERS DATA UNDERSCORES IMPORTANCE OF INNOVATION TO GROWTH AND JOB CREATION



Source: "The Importance of Young Firms for Economic Growth," Kauffman Foundation (2015) Copyright © 2017 Hawthorn Foundation. All rights reserved.



Startup vs Small Business: "New businesses account for nearly all net new job creation and almost 20 percent of gross job creation, whereas small businesses do not have a significant impact on job growth when age is accounted for."

Recession Resistant: "From 2006 to 2009, young firms (fewer than five years old and twenty employees) remained a positive source of net employment growth (8.6 percent), whereas older and larger firms shed more jobs than they created."

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Source: Praxis Strategy Group, Bloomberg, Milken Institute, GITF Copyright © 2017 Hawthorn Foundation. All rights reserved.



## HOW INNOVATION WORKS MISSOURI ENTREPRENEURS FACE SEVERAL OBSTACLES



Source: Anna Vital on blog.adioma.com/how-to-start-a-startup-infographic/, GITF Waggl Survey Copyright © 2017 Hawthorn Foundation. All rights reserved.

- Entrepreneur success rates:
  - 18% First-time
  - 20% Previously unsuccessful
  - 30% Previously successful
- Waggl Surveys revealed most people do not believe Missouri entrepreneurs have what they need for new tech startups:
  - 24% agreed access to capital is sufficient
  - 47% agreed necessary talent is available
- The average age of an entrepreneur is 39 (average tech entrepreneur is 38.5)



## HOW INNOVATION WORKS EXAMPLES OF RECENT MISSOURI STARTUP SUCCESSES



 Provides verification using eye-veins and other micro-features in and around the eye. Images of the human eye are used to authenticate mobile device users (Kansas City)



• An online B2B marketplace for early payments (Kansas City)



 Production of enzymes specifically designed for survival and activity in harsh conditions (St. Louis)



 A peer-to-peer equipment rental marketplace that also offers telematics and equipment utilization services (Columbia)



 Focusing on the discovery and development of new medicines for the treatment of cancer and autoimmune/ inflammatory diseases (St. Louis)

Source: https://angel.co/Missouri, Missouri Technology Corporation, company websites Copyright © 2017 Hawthorn Foundation. All rights reserved.



Building Bitcoin Infrastructure Safely (Springfield)



## HOW INNOVATION WORKS EXAMPLE NEW VENTURE FUNDS



- Brings accredited and institutional investment to early stage ventures in Chicago, Cleveland, Denver, Houston, Indianapolis, St. Louis, and many more places
- Focus on ventures that cure cancer, fight fibrosis, improve agriculture, reduce costs of energy efficiency, streamline telecommunications, increase enterprise security, wrangle with logistics, and create new retail solutions



INSPIRING INVESTMENTS

- Innovative example of how local community leaders can rally capital to support start-ups
- Provide new seed capital for startups in the region, in partnership with Cultivation Capital, Twain Financial Partners, and local banks
- Fund 1 is a \$5 million fund set to deploy in 2018Q1
- Plans to raise \$10M Fund 2 already underway



- Raised \$2.1 million to invest in early stage tech companies
- Created the fund without MTC funding, but with the University of Missouri as lead investor
- Invested in 10 local companies in the first year; on track to invest in 30 companies

Source: fund web sites, Bill Turpin Copyright © 2017 Hawthorn Foundation. All rights reserved.



## HOW INNOVATION WORKS HIGHLIGHTS OF OTHER STATES' INNOVATION PROGRAMS



The Oklahoma Innovation Institute (OII) is a 501(c)(3) notfor-profit corporation with the mission of building an innovative and entrepreneurial economy in Oklahoma with the central theme of "Research to High Impact Jobs."



The Maryland Innovation Initiative (MII) was created as a partnership between the State of Maryland and five Maryland academic research institutions. The program is designed to promote commercialization of research conducted in the partnership universities and leverage each institution's strengths.



Allow continued technology and business development during gaps between the Federal Phase I and Phase II awards; The matching funds are to be used for new and additional work tasks that are complementary to the existing Federal SBIR/STTR award.

Source: program web sites Copyright © 2017 Hawthorn Foundation. All rights reserved.



Established by the State of Ohio to help increase private investment in Ohio companies in the seed or early stage of business development. These venture capital funds commit to invest at least half of the Ohio Capital Fund monies in Ohio-based companies, corporations and individuals.



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## WHERE WE ARE TODAY: OVERALL MISSOURI RANKS MID TIER IN INNOVATION NATIONWIDE

#### STATE INNOVATION SCORES (1 – 100 SCALE)



Source: Bloomberg 2016 U.S. State Innovation Index Copyright © 2017 Hawthorn Foundation. All rights reserved.

- Missouri's Innovation Score of 41 ranks it 32<sup>nd</sup> out of the 50 States \*
- All States bordering Missouri, except Illinois, fall in the mid tiers of innovation

#### \* How the State Innovation Score is Calculated:

- 1. R&D Intensity: R&D Spending as % of State GSP
- 2. Productivity: GSP per Employed Person
- 3. Tech Company Density: # of Highly Technology Intensive Public Companies as % of Total Publicly Listed Companies in the State
- 4. STEM Concentration: STEM Professionals as % of State Total Employed
- 5. Science & Engineering Degree Holders: as % of State Degree Holders
- 6. Patent Activity: # Patents Granted by State of Origin per Million of State Population



### WHERE WE ARE TODAY: OVERALL MISSOURI HAS CONSISTENTLY RANKED MID TIER FOR STATE SCIENCE AND TECHNOLOGY

#### STATE TECHNOLOGY & SCIENCE INDEX (STSI)



### MISSOURI'S STSI SCORE TREND

(2002 - 2016)

Year	STSI Score	Rank
2016	50.60	28
2014	44.62	34
2012	48.90	29
2010	48.44	30
2008	49.62	30
2004	48.13	31
2002	47.49	28



Source: Milken Institute Center for Jobs and Human Capital Copyright © 2017 Hawthorn Foundation. All rights reserved.



Source: Praxis Strategy Group, OECD, Bloomberg, Milken Institute, Missouri GITF Copyright © 2017 Hawthorn Foundation. All rights reserved.



## WHERE WE ARE TODAY: ENVIRONMENT MISSOURI RANKS TOP TO MID TIER ON ENVIRONMENT



Average Yearly Growth of High-Tech Industries (2010-2015)

# of Business Incubators per 10,000 Business Establishments (2016)

Risk Capital and Entrepreneurial Infrastructure, up 24 spots from 2014 (2016)

# of Highly Technology Intensive Public Companies % Total Publicly Listed Companies in the State (2016)

# of High-Tech Industries Growing Faster than U.S. Average (2010-2015)

"Missouri isn't the only state focusing on innovation. We're not winning yet. We can't let up."

- Steering Committee Member

"You need three things to create an entrepreneurial ecosystem: talent, capital and density.

You get momentum when talent and capital are in close proximity. Proximity yields shared experience, then community, then culture."

– Cliff Holekamp
 Partner, Cultivation Capital
 Professor of Entrepreneurship, Washington University in St. Louis

Source: Bloomberg, Milken Institute, Missouri Regional Chamber of Commerce, Accenture Analysis Copyright © 2017 Hawthorn Foundation. All rights reserved.



Top Tier (1-15 states) Mid Tier (16-35) Bottom Tier (36-50)

### WHERE WE ARE TODAY: ENVIRONMENT AMONG THE 25 LARGE STATES, MISSOURI RANKS MID TIER ON STARTUP ACTIVITY MISSOURI RANK AMONG **MISSOURI RANK AMONG**

#### **KAUFFMAN'S 3 TYPES\* OF ENTREPRENEURSHIP**



## **TOP 25 LARGE STATES**

Top Tier	(1-7	states)

Mid Tier (8-18) Bottom Tier (19-25)



- 10 Startup Overall (down 1 from 2016)
- 10 Rate of New Entrepreneurs
- 13 Opportunity Share of New Entrepreneurs
  - Startup Density



- 24 Main Street Overall (down 5 from 2016)
- 24 Survival Rate
- 6 Rate of Business Owners
- Established Small Business Density



- 22 Growth Overall (up 1 from 2016)
- 20 Share of Scale-ups
- 13 Rate of Startup Growth
- 22 High Growth Company Density

\* See appendix for type definitions



### WHERE WE ARE TODAY: ENVIRONMENT MISSOURI RANKS BEHIND MOST PEER STATES ON MAIN STREET AND GROWTH ENTREPRENEURSHIP

Mid Tier (8-18)

Bottom Tier (19-25)

#### PEER STATE COMPARISON ON ENTREPRENEURSHIP

Ranked within the group of 25 "Large States"\*

Kauffman Index 2017: Types of Entrepreneurship	МО	CO	IL	MN	TN	тх
Startup Activity						
a. Rate of New Entrepreneurs						
b. Opportunity Share of New Entrepreneurs						
c. Startup Density						
Main Street Entrepreneurship						
Growth Entrepreneurship						

 $\ensuremath{^*}$  Peer states Iowa and Kansas do not classify as Large States

Source: The Kauffman Index, see appendix for type definitions Copyright © 2017 Hawthorn Foundation. All rights reserved.



### WHERE WE ARE TODAY: ENVIRONMENT MISSOURI METROS ARE MID TIER FOR STARTUP ACTIVITY AND LAG MAJOR PEERS IN MAIN STREET AND GROWTH ENTREPRENEURSHIP

#### MIDWEST CITIES COMPARISON ON ENTREPRENEURSHIP

Best rank of 5 peer cities Worst rank of 5 peer cities

# = rank among 39 most populous U.S. metropolitan areas

Kauffman Index Metric*	Kansas City	St. Louis	Nashville	Denver	Minneapolis
startupactivity	15	26	29	10	37
mainstreet entrepreneurship	23	32	20	15	6
growth	24	29	5	13	17

\*Kauffman Index Metropolitan Area Rankings 2017 rank the 39 most populous U.S. metros.

Source: The Kauffman Index, See Appendix for further definitions. Copyright © 2017 Hawthorn Foundation. All rights reserved.



## WHERE WE ARE TODAY: ENVIRONMENT MISSOURI'S LARGEST ECOSYSTEMS COMPETE WELL IN THE "SILICON PRAIRIE"

#### THE STATE OF SILICON PRAIRIE (2016): CITY RAKINGS

PER CAPITA RANKING	COMMUNITY	UNITY PER CAPITA		RAW SCORE (with row ranking)	
1	Ames	9.83	9.44	(10)	
2	Kansas City	8.83	184.38	(2)	
3	St. Louis	8.23	231.48	(1)	
4	Lincoln	7.34	23.75	(5)	
5	Des Moines	6.97	43.39	(3)	
6	lowa City	6.29	10.47	(7)	
7	Columbia	5.67	9.92	(8)	
8	Omaha	4.40	40.24	(4)	
9	Sioux City	4.14	7.01	(12)	
10	Sioux Falls	9.83	9.74	(9)	
11	Lawrence	3.52	4.15	(13)	
12	Manhattan	3.24	3.19	(14)	
13	Cedar Rapids	3.16	8.40	(11)	
14	Wichita	2.26	14.58	(6)	

#### Source: siliconprairienews.com

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#### **FASTEST GROWING COMPANIES (2016)**



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FOUNDATION

## WHERE WE ARE TODAY: ENVIRONMENT ST. LOUIS TECH ENTREPRENEURIAL ECOSYSTEM

"St. Louis is a case study for cities desperate for entrepreneurs."

venturebeat.com

"There is a VERY vibrant startup ecosystem growing in St. Louis."

– Edward Domain, Founder of techli.com



\*Ecosystem map can be found at www.itenstl.org



Source: ITEN, 2015; MTC 2016 Annual Report , venturebeat.com, quora.com Copyright © 2017 Hawthorn Foundation. All rights reserved.

## WHERE WE ARE TODAY: ENVIRONMENT KANSAS CITY ENTREPRENEURIAL ECOSYSTEM

"Many impressive developments are helping to move the ball past the goal line with entrepreneurs in Kansas City.

Much of this is due to a renaissance in the spirit of collaboration. Groups such as KCSourceLink, UMKC SBTDC and the Kauffman Foundation are providing unprecedented access, opportunities and resources for entrepreneurs."

- The Huffington Post



\*Ecosystem map can be found at http://bit.ly/2emHZcK

Source: KCSourceLink, 2015, huffingtonpost.com Copyright © 2017 Hawthorn Foundation. All rights reserved.



## WHERE WE ARE TODAY: ENVIRONMENT MISSOURI'S FRAGMENTATION IMPEDES COLLABORATION

"Missouri is a highly fragmented state. People here think of themselves first as Kansas City residents, St. Louisans, Springfielders, Columbians, etc. There is also a big rural-urban divide. The last person who called themselves a Missourian was probably Samuel Clemens...and that's only because he was from Hannibal!" -- Steering Committee Member

#### RURAL VS. URBAN

"In 2017, we're ranked #10 in the country in new business creation. But when you break it down across the State, it's very uneven. St. Louis and Kansas City are #26 and #15, but the small communities and rural areas are facing big challenges."

-- Wendy Guillies, President and CEO Kauffman Foundation



#### **INDUSTRY VS. INDUSTRY**

Agriculture, Biosciences, Advanced Manufacturing, Animal Health – with different regions having different strengths

"Getting us all to play on the same team is the hardest political problem. I see a lot of regional priorities that are above the state priorities. Different cities criticize each other. Everybody gets their little pile of money and doesn't want to share. It pervades the ecosystem."

-- Steering Committee Member

#### **METRO VS. METRO**

- o St. Louis vs. Kansas City vs. "the rest"
- o Kansas City, MO vs. Kansas City, KS
- o St. Louis, MO vs. East St. Louis, IL
- St. Louis City vs. St. Louis County (all 89 municipalities)

"We have anchors throughout the state, but we're not working with each other in our own counties much less other metros." -- Steering Committee Member

Source: GITF Task Force Activities, U.S. Census Bureau, 2010 Census; Photo: Amazon, Berkshire Bowls Copyright © 2017 Hawthorn Foundation. All rights reserved.



## WHERE WE ARE TODAY: ENVIRONMENT OTHER FACTORS AFFECTING ENVIRONMENT ARE MIXED

Factors	Pros	Cons
Business Environment	<ul> <li>9th Best Place to Start a Business (2017 Wallethub.com)</li> <li>Missouri has moved up 9 slots in the past year on "Americas Top States for Business" (2017 CNBC Survey)</li> <li>St. Louis and Springfield ranked in the "Top 15 Cities in the U.S. to Start a Business" (2017 CNBC Survey)</li> <li>Ranked highly for Agriculture (Department of Agriculture, 2016)</li> <li>9th on Infrastructure: central location (Site Selection Group, 2016)</li> <li>14th on Integrity and health of State government (U.S. News, 2017)</li> <li>11<sup>th</sup> Mercatus on State Fiscal Ranking (Mercatus Center 2017)</li> <li>15th on Overall Tax Climate (TaxFoundation.org, 2017)</li> <li>70% of Waggl respondents feel climate for entrepreneurs and innovation in Missouri is improving (June/July2017)</li> </ul>	<ul> <li>43rd Per Capita GDP Growth (Bureau of Economic Analysis, 2003-2013)</li> <li>48th in Industry Cluster Strength (Michael Porter, 2012)</li> <li>39th in Labor Productivity (Michael Porter, 2012)</li> <li>42nd in Employment Growth (Bureau of Labor Statistics, 2004-2014)</li> <li>State currently lacks a major hub airport</li> </ul>
Quality of Life	<ul> <li>St. Louis and Kansas City both in the Top 10 Least Traffic Cities (The Fiscal Times, 2016)</li> <li>31st in unemployment rate (Bureau of Labor Statistics, 2017)</li> <li>9th on Affordable Housing (U.S. News, 2016)</li> <li>11th on Cost of Living (U.S. News, 2016)</li> </ul>	<ul> <li>37th on Quality of Life (U.S. News, 2017)</li> <li>36th on Wellbeing (Healthways/Gallup, 2016)</li> <li>11th on Crime: St. Louis ranked #1 Most Dangerous City in the Nation with Kansas City ranked #6, and Springfield ranked #1 Most Dangerous by Property Crimes (National Crime Survey, 2017; Forbes, 2017)</li> <li>35th on Healthcare: just two hospitals ranked among the top 100 in the US (americashealthrankings.org, 2015)</li> <li>30th on Overall Poverty (U.S. Census Bureau, 2014)</li> </ul>

Source: U.S. News, Wallethub.com, Kauffman Index, The Fiscal Times, Tax Foundation.org, MO Department of Agriculture, Bureau of Labor Statistics Copyright © 2017 Hawthorn Foundation. All rights reserved.



# WHERE WE ARE TODAY: IDEAS MISSOURI RANKS MID TIER ON R&D; WASHINGTON UNIVERSITY ACCOUNTS FOR 80%+ OF R&D DOLLARS



Source: Bloomberg, Milken Institute, Missouri Regional Chamber of Commerce, federalreporter.nih.gov Copyright © 2017 Hawthorn Foundation. All rights reserved.



### WHERE ARE WE TODAY: IDEAS WITH SOME EXCEPTIONS, MISSOURI GRADUATE PROGRAMS ARE NOT RANKED IN THE TOP TIER

#### MISSOURI UNIVERSITY GRADUATE PROGRAM RANKINGS

University	Med School	Plant Sciences	Computer Science	Engineering
Washington University	7		40	50
St. Louis University	67			
University of Missouri - Columbia	73	79	101	89
Missouri University of Science & Technology			112	89
University of Missouri – Kansas City				
University of Missouri – St. Louis				


## WHERE ARE WE TODAY: IDEAS WASHINGTON UNIVERSITY: COMMERCIALIZATION



### Office of Technology Management: By the Numbers



Source: Washington University Copyright © 2017 Hawthorn Foundation. All rights reserved.



## WHERE ARE WE TODAY: IDEAS **UNIVERSITY OF MISSOURI: COMMERCIALIZATION**

OPTION

162

42

EY2016

226

22

FY2015



**NEW INVENTION DISCLOSURES** 

FV2014

\$6,331,296

Revenues from commercialization activities are distributed to

\$10 million

MU researchers notify the university when they have inventions

and innovations. Tech-transfer professionals then assess these

disclosures for patentability and marketability.

GROSS LICENSING INCOME

\$5 million

FY2015

\$15 million

12/1

100

110

60

40

20

FY2012

EV2012

50

MU inventors and the university.





183

250

200

150

100

50

0

23

FY2012



77 U.S. PATENT APPLICATIONS AGREEMENTS FILED EXECUTED

**ACTIVE LICENSE & OPTION AGREEMENTS** 

32

Startups and established businesses license the rights to MU

inventions via contracts called license and option agreements.

FY2014

Newly Executed Agreements IT otal Active Agreements

202

30

FY2013



COMPANIES

CREATED

9.351.966

\$14,99 MILLION IN REVENUE GENERATED

9.314.157

DID YOU KNOW? Thirty-five percent of issued 9,217,002 CLUSTER BORON U.S. patents in MU's portfolio are COMPOUNDS AND USES THEREOF licensed and in various stages of the commercialization process, George R. Kracke, Yulia Sevryugina

and Marion Frederic Hawthorne 9,220,258 TISSUE PRESERVATION SYSTEM - James L. Cook, Clark T. Hung, Eric Lima and Aaron Stoker 9,242.016 GOLD-COATED LANTHANIDE NANOPARTICLES - John David Robertson, Mark F. McLaughlin and Paul H. Peysner

9,266,844 SUPPRESSION OF SARS REPLICATION BY SARS HELICASE INHIBITORS - Stefan G. Sarafianos, Adeyemi O. Adedeji, Kamlendra Singh DEVICE TO MEASURE PUPILLARY LIGHT REFLEX IN

- Gang Yao, Judith H. Miles and ECTROMETER - Daniel E.

berger, Mark A. Prelas, NED HIGH DENSITY AIR 9,338,874 SYSTEMS AND METH PLASMA - Randy D

9345.688 KONO CHANNELS Xiaogin Zou COMPOSITION COMPRISING A COMBINATION OF OMEPRAZOLE AND LANSOPRAZOLE. AND A BUFFERING AGENT, AND METHODS OF USING SAME -



GENES IMPLICATED IN RESISTANCE TO SOYBEAN CYST 9,371,541 NEMATODE INFECTION AND METHODS OF THEIR USE - Melissa Goeliner Milchum Pramod Kailheri Kandoth, Greg Yeckel and Nagabhushana Ilhal



**DID YOU KNOW?** 

The University of

Missouri is consistently

in the top 25 percent of higher education

institutions nationally

for total income received from

licensed inventions."

MU generated

\$46.3 million in licensing income from FY2012 - 16.

UNIVERSITY

OP

OF U.S.

Ranking based on annual U.S. Licensing

Activity Surveys, Association of University

Technology Managers

OF MISSOURI

UNIVERSITIES

38

Source: University of Missouri Magazine, Fall 2017, 2016 MU Tech Transfer Report

\$30 million

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104

Evenis

\$14,996,912

## WHERE ARE WE TODAY: IDEAS OTHER WORLD-CLASS RESEARCH INSTITUTIONS

Institution	Location	Federal R&D Award # (2016)	Federal R&D Award \$ (2016)	Operating Budget \$M	# Employees	
DONALD DANFORTH PLANT SCIENCE CENTER	St. Louis	11	\$8,384,583	\$27M	~235	"Danforth Center unites world leading experts in the fields of plant and agricultural sciences - each with strong interdisciplinary research skills." – Conviron
STOWERS INSTITUTE" FOR MEDICAL RESEARCH	Kansas City	13	\$3,610,279		~550	"'The place is amazing,' says Dr. Eric Olson, 'They started with nothing and created a world-class research institute.'" – Barron's
<b>MRIGlebal</b>	Kansas City	8	\$10,215,868		~550	"Midwest Research Institute, now MRIGlobal, has been making its mark for 70 years" – kansascity.com
Missouri University Research Reactor	Columbia	1	\$250,958		~200	"Because of the fact we have this really unique asset, we are able to attract some of the best students in the country." – Associate Director David Robertson





## WHERE WE ARE TODAY: IDEAS COMMERCIAL INNOVATION IS MIDDLE OF THE PACK

PEER STATE	COMPARISON	– PATENTS
Peer State	Total Utility Patents 2015	Patents/ 1M People
Missouri	1,082	178
Colorado	3,045	550
Illinois	5,028	393
Iowa	992	316
Kansas	915	315
Minnesota	4,394	796
Tennessee	1,009	152
Texas	9934	357
U.S. Average*	2052	326
*O a lavelata al cuitta a cut the a		

\*Calculated without the outlier of CA

Source: Kauffman Foundation; Pitchbook; U.S. Patent and Trademark Office Copyright © 2017 Hawthorn Foundation. All rights reserved.

 Top Tier (1-15 states)

 Mid Tier (16-35)

Bottom Tier (36-50)

### MISSOURI RANKING ON OTHER COMMERCIAL INNOVATION METRICS

Business R&D as % of private industry output



9

Small Business Innovation Research/Technology Transfer, per \$1M GDP

### MISSOURI HAS 2 ON WORLD'S 100 MOST INNOVATIVE COMPANIES LIST



Operational Center in O'Fallon, MO

81. **Serner** 

World Headquarters in Kansas City, MO



## WHERE WE ARE TODAY: TALENT MISSOURI RANKS MID TIER ON EDUCATION; ONLY ONE UNIVERSITY IS RANKED IN THE TOP 20 NATIONALLY

### **MISSOURI EDUCATION RANKINGS**



### **MISSOURI UNIVERSITY NATIONAL RANKINGS**

University	National Ranking
Washington University	19
St. Louis University	96
University of Missouri – Columbia	111
Missouri University of Science & Technology	164
University of Missouri – Kansas City	210
University of Missouri – St. Louis	220

Source: Bloomberg, Milken Institute, Missouri Regional Chamber of Commerce, US News & World Report, Accenture Analysis Copyright © 2017 Hawthorn Foundation. All rights reserved.



## WHERE WE ARE TODAY: TALENT ON EDUCATIONAL ATTAINMENT, MISSOURI RANKS BETWEEN MID AND BOTTOM TIERS

Top Tier (1-15 state) Mid Tier (16-35)

Bottom Tier (36-50)

### **PEER STATE COMPARISON – EDUCATIONAL ATTAINMENT**

Educational Attainment Metrics	мо	СО	IA	IL	KS	MN	TN	тх
Population Age 25 and Above with Some College or Higher (2015)	58%	69.5%	59.7%	61.9%	63.8%	67.4%	52.9%	57.1%
Population Age 25 and Above with Bachelor's or Higher (2015)	27.9%	39.3%	26.9%	33.0%	31.8%	34.7%	25.7%	28.4%
8th Grade Mathematics Proficiency (2013)	33	42	24	36	40	47	28	38
8th Grade Science Proficiency (2011)	36	42	20	26	21	42	31	32
Percent of Science, Engineering, and Technology Degrees (2013)	25.5%	36%	26.8%	27.5%	25.1%	29.4%	24.9%	29.2%
	L							

Source: National Science Foundation, National Center for Education and Statistics Copyright © 2017 Hawthorn Foundation. All rights reserved.



### WHERE WE ARE TODAY: TALENT MISSOURI RANKS TOP TIER IN AGRICULTURE AND BIOSCIENCES, AND MID TIER IN INFORMATION TECHNOLOGY WORKFORCE INTENSITY

Top Tier (1-15 state) Mid Tier (16-35)

Bottom Tier (36-50)

### PEER STATE COMPARISON - WORKFORCE BY SECTOR

						1		
Workforce Sector	мо	со	IA	IL	KS	MN	TN	ТΧ
Intensity of Agricultural & Food Science Technicians (2015)								
Intensity of Biochemists & Biophysicists (2015)		1						
Intensity of Computer & Information Scientists (2015)		I	NA					
Intensity of Mechanical Engineers (2015)								
Intensity of Medical Scientists, except Epidemiologists (2015)								



## WHERE WE ARE TODAY: CAPITAL & CREDIT MISSOURI RANKS MID TIER ON STARTUP FUNDING BUT ITS VC FUNDING HAS BEEN INCREASING

\$M

Top Tier (1-15 state) Mid Tier (16-35)

Bottom Tier (36-50)

44



MISSOURI STARTUP CAPITAL TREND (2003-2016)



Source: Bloomberg, Milken Institute, 2017 PitchBook Data, Accenture Analysis Copyright © 2017 Hawthorn Foundation. All rights reserved.

return, the money will find them." – Entrepreneur

### ŗ

### WHERE WE ARE TODAY: CAPITAL & CREDIT MISSOURI ATTRACTS LESS THAN 1% OF STARTUP CAPITAL IN THE US, BUT ITS GROWTH RATE HAS BEEN HIGHER THAN THE NATIONAL AVERAGE

### STARTUP FUNDING BY STAGE FOR UNITED STATES, MISSOURI AND PEER STATES (2016)

Region			2010-2016		elerator/ bator	Anj	gel	Se	ed	Early St	age VC	Later St	age VC	Gra	ints	Ot	ther
	\$M	% U.S.	CAGR	ŞM	% Total	\$M	%Total	\$M	% Total	\$M	% Total	\$M	% Total	\$M	% Total	\$M	% Total
United States	\$73,955.7	100.0%	14.2%	\$332.8	0.4%	\$3,445.2	4.7%	\$3,330.5	4.5%	\$23,281.4	31.5%	\$41,783.5	56.5%	\$1,732.8	2.3%	\$49.5	0.1%
Missouri	\$286.6	0.4%	17.3%	\$1.4	0.5%	\$56.9	19.9%	\$9.4	3.3%	\$31.2	10.9%	\$179.5	62.6%	\$8.2	2.9%	\$0.0	0.0%
Colorado	\$1,048.0	1.4%	5.8%	\$12.2	1.2%	\$190.8	18.2%	\$41.5	4.0%	\$279.7	26.7%	\$450.7	43.0%	\$72.6	6.9%	\$0.5	0.0%
Illinois	\$1,353.6	1.8%	3.3%	\$6.4	0.5%	\$112.0	8.3%	\$79.8	5.9%	\$563.4	41.6%	\$549.5	40.6%	\$42.5	3.1%	\$0.0	0.0%
lowa	\$55.3	0.1%	5.8%	\$0.4	0.7%	\$12.3	22.2%	\$1.0	1.8%	\$25.0	45.2%	\$15.0	27.1%	\$1.6	2.9%	\$0.0	0.0%
Kansas	\$27.2	0.0%	-12.0%	\$3.3	12.1%	\$3.7	13.6%	\$4.8	17.6%	\$10.0	36.8%	\$4.0	14.7%	\$1.4	5.1%	\$0.0	0.0%
Minnesota	\$496.1	0.7%	7.9%	\$0.4	0.1%	\$59.3	12.0%	\$11.9	2.4%	\$139.0	28.0%	\$277.7	56.0%	\$7.8	1.6%	\$0.0	0.0%
Tennessee	\$366.3	0.5%	27.2%	\$0.5	0.1%	\$47.4	12.9%	\$17.3	4.7%	\$103.2	28.2%	\$197.4	53.9%	\$0.5	0.1%	\$0.0	0.0%
Texas	\$2,007.0	2.7%	4.2%	\$9.2	0.5%	\$346.3	17.3%	\$129.5	6.5%	\$720.5	35.9%	\$701.5	35.0%	\$100.0	5.0%	\$0.0	0.0%

Source: 2017 PitchBook Data, Accenture Analysis



## WHERE WE ARE TODAY: CAPITAL & CREDIT MISSOURI RANKS TOP TIER IN RATE OF GROWTH OF STARTUP FUNDING – AHEAD OF MOST REGIONAL PEERS

### **STARTUP FUNDING GROWTH RATES (2010-2016)**

Region	Startup Fu	nding (\$M)	2010-2016	Rank	
	2016	2010	CAGR		
United States	\$74,025.3	\$33,293.9	14.2%		
Missouri	\$287.5	\$110.3	17.3%	13	
Colorado	\$1,047.9	\$746.3	5.8%	29	
Illinois	\$1,354.1	\$1,116.8	3.3%	36	
lowa	\$55.7	\$39.7	5.8%	30	
Kansas	\$27.2	\$58.7	-12.0%	52	
Minnesota	\$496.0	\$314.3	7.9%	23	
Tennessee	\$366.4	\$86.5	27.2%	5	
Texas	\$2,007.4	\$1,570.0	4.2%	34	

 Top Tier (1-15 state)

 Mid Tier (16-35)

 Bottom Tier (36-50)

\* The **compound annual growth rate** (**CAGR**) is a useful measure of growth over multiple time periods. It can be thought of as the growth rate that gets you from the initial investment value to the ending investment value if you assume that the investment has been compounding over the time period.

Source: 2017 PitchBook Data, Accenture Analysis



## WHERE WE ARE TODAY: CAPITAL & CREDIT MISSOURI RANKS TOP TIER ON ANGEL AND MID TIER ON ALL OTHER STAGES OF STARTUP FUNDING

· · · · · · · · · · · · ·

Bottom Tier (36-50)

Mid Tier (16-35)

#### MISSOURI AND PEER STATES STARTUP FUNDS % GSP RANKING BY STAGE (2016)

2016 Rank on Funding % GSP Region **Total Startup** Pre/Accelerator Angel Seed Early Stage VC Later Stage VC Grants Funds / Incubator Colorado Illinois lowa Kansas Minnesota Missouri Tennessee Texas

Source: 2017 PitchBook Data, usgovernmentspending.com, Accenture Analysis Copyright © 2017 Hawthorn Foundation. All rights reserved.



## WHERE WE ARE TODAY: CAPITAL & CREDIT MISSOURI'S HEALTHCARE AND IT SECTORS RECEIVE THE LARGEST SHARE OF STARTUP FUNDING

### **MISSOURI STARTUP FUNDING BY INDUSTRY AND STAGE (2016)**

Industry	Total		Pre/Accelerator/ Incubator		Angel		Seed		Early Stage VC		Later Stage VC		Grants		Other	
	\$M	% MO	ŞМ	% Total	ŞM	%Total	\$M	% Total	\$M	% Total	ŞM	% Total	\$M	% Total	ŞM	% Total
Business Products & Services	\$20.60	7.2%	\$0.1	0.5%	\$6.2	30.1%	\$0.0	0.0%	\$0.1	0.5%	\$13.2	64.1%	\$1.0	4.9%	\$0.0	0.0%
Consumer Products & Services	\$33.70	11.8%	\$0.4	0.1%	\$31.4	93.2%	\$0.3	0.9%	\$1.6	4.7%	\$0.0	0.0%	\$0.0	0.0%	\$0.0	0.0%
Financial Services	\$16.70	5.8%	\$0.1	0.0%	\$16.6	99.4%	\$0.0	0.0%	\$0.0	0.0%	\$0.0	0.0%	\$0.0	0.0%	\$0.0	0.0%
Healthcare	\$154.20	53.8%	\$0.0	0.0%	\$1.9	1.2%	\$2.6	1.7%	\$17.4	11.3%	\$127.3	82.6%	\$5.0	3.2%	\$0.0	0.0%
Information Technology	\$53.20	18.6%	\$0.6	0.2%	\$0.8	1.5%	\$5.2	9.8%	\$5.5	10.3%	\$39.0	73.3%	\$2.1	3.9%	\$0.0	0.0%
Other	\$8.20	2.9%	\$0.2	0.1%	\$0.0	0.0%	\$1.3	15.9%	\$6.6	80.5%	\$0.0	0.0%	\$0.1	1.2%	\$0.0	0.0%
Total Missouri	\$286.60	100.0%	\$1.4	0.5%	\$56.9	19.9%	\$9.4	3.3%	\$31.2	10.9%	\$179.5	62.6%	\$8.2	2.9%	\$0.0	0.0%

Source: 2017 PitchBook Data, Accenture Analysis





## WHERE WE ARE TODAY: CAPITAL & CREDIT ST. LOUIS RANKS IN TOP THIRD, WHILE KANSAS CITY RANKS IN BOTTOM THIRD AMONG MIDWEST CITIES

### **MIDWEST FUNDS RAISED BY REGION (2016)**

Region	Funds Raised (\$M)	MSA Population (M)	Per Capita Investmen				
Austin	\$1,341.3	1.7	\$782.5				
Denver	\$1,098.3	2.5	\$431.8				
Dallas	\$1,216.5	6.4	\$189.3				
Minneapolos	\$534.9	3.3	\$159.7				
Chicago	\$1,429.6	9.5	\$151.1				
Nashville	\$238.5	1.7	\$142.7				
St. Louis	\$290.1	2.8	\$104.1				
Houston	\$521.4	5.9	\$88.1				
Cleveland	\$181.6	2.1	\$87.4				
Milwaukee	\$111.9	1.6	\$71.9				
Indianapolis	\$119.6	1.9	\$63.4				
Detroit	\$267.9	4.3	\$62.4				
Cincinnati	\$116.6	2.1	\$55.2				
Omaha	\$46.9	0.9	\$54.2				
Louisville	\$58.0	1.2	\$47.0				
Oklahoma City	\$48.9	1.3	\$39.0				
Kansas City	\$76.4	2	\$39.0				
Columbus	\$72.0	1.9	\$37.9				
New Orleans	\$11.1	1.2	\$9.3				
Memphis	\$2.3	1.3	\$1.8				

Source: Crunchbase; 2010 Census Metropolitan Statistical Area Population



### WHERE WE ARE TODAY: CAPITAL & CREDIT DIFFERENT ECOSYSTEMS HAVE DIFFERENT CAPITAL PROFILES

### **ST. LOUIS CAPITAL AVAILABILITY**



Source: Missouri Regional Chamber of Commerce; TechCrunch; Cultivation Capital, Crunchbase Copyright © 2017 Hawthorn Foundation. All rights reserved.

### KANSAS CITY CAPITAL AVAILABILITY



\*4 seed stage, 1 venture stage and 1 undisclosed stage investments were undisclosed amounts.

\*Totals include capital raised by companies in Kansas City, KS. It is assumed this capital is available to Missouri companies



## WHERE WE ARE TODAY: BRAND THERE ARE SOME POSITIVE MISSOURI BRAND MESSAGES



Source: neighborhoodscout.com, "Accelerate St. Louis" presentation Copyright © 2017 Hawthorn Foundation. All rights reserved.



## WHERE WE ARE TODAY: BRAND MISSOURI ALSO HAS CONSIDERABLE BRAND HEADWINDS

Neighborhoodscout.com's "The Most Dangerous Places to Live in the U.S."

Missouri City	Rank
St. Louis	6
Kansas City	28
Springfield	31

Long After Protests, Students Shun the University of Missouri

Social Media Analysis noted 10:1 negative sentiment towards Missouri







Source: neighborhoodscout.com, Accenture Social Media Analysis, New York Times, New York Post Copyright © 2017 Hawthorn Foundation. All rights reserved.



## WHERE WE ARE TODAY: BRAND NEGATIVE BRAND AFFECTS "STICKINESS" AND DENSITY



Source: USA Today, May 2017, New York Times, 2017 Copyright © 2017 Hawthorn Foundation. All rights reserved.



## WHERE WE ARE TODAY: BRAND EMERGING DEVELOPMENTS

## NGA recommends north St. Louis as location for new \$1.75B site; 3,000 employees

POSTED 4:26 PM, MARCH 31, 2016, BY JOE MILLITZER, BETSEY BRUCE AND ERIKA TALLAN, UPDATED AT 05:16AM, APRIL 1, 2016

#### ULV 26-2017

Unprecedented Youth Careers Campaign Launches in Cape and Jackson

St. Louis Announces \$5 Million Dollar "Spirit of St. Louis" Seed Stage Fund

3M announces \$40M expansion in Springfield, creating 90 new jobs

### Columbia becomes hub for entrepreneurs, startups

OPPORTUNITIES

CONNECT WITH US

By Madeleine Leroux / mleroux@columbiatribune.com | Posted Jan 28, 2017 at 12:01 AM

Hawthorn

54

Gigabit City Summit shines national spotlight on KC Smart City

By: Meghan LeVota, reporter - August 08, 2017

Springfield region attracts workers' compensation care management company

Exploring the possibilities of a catalyst for downtown development

Source: Governor's Innovation Task Force Workshops Copyright © 2017 Hawthorn Foundation. All rights reserved. Editorial: Kansas City should embrace a new airport terminal. Here's why.

Ay his prove (by the entropy of

ST. LOUIS LANDS WOW AIR FOR SERVICE TO EUROPE

August 23, 2017 • by STLPartnership



LATEST NEWS

INFORMATION

Next NGA West

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## MAJOR INDUSTRY SECTORS POTENTIAL PRIORITY INDUSTRY SECTORS FOR INNOVATION IN MISSOURI



Source: Missouri Regional Chamber of Commerce, Department of Economic Development, GITF Interviews & Waggl Copyright © 2017 Hawthorn Foundation. All rights reserved.



## MAJOR INDUSTRY SECTORS AGRICULTURE

Missouri's agriculture industry sector includes production agriculture of growing grains and oilseeds, cattle and hog farming and many further food and forest processing industries.



DISTINCT ADVANTAGE: Missouri is a top agriculture production state, ranking in the top 10 for number of farms, corn soybeans, rice, cotton, cows hogs, and poultry. Missouri is also home to major research assets, global agribusinesses, and national commodity groups.

Source: Missouri Department of Economic Development, Missouri Department of Agriculture, GITF Waggl Survey Copyright © 2017 Hawthorn Foundation. All rights reserved.



## **MAJOR INDUSTRY SECTORS BIOSCIENCES**

Missouri's bioscience industry sector is comprised of pharmaceutical and medical device development and manufacturing, medical diagnostics, and scientific research and development and technical services.



DISTINCT ADVANTAGE: Missouri has a unique advantage in biosciences due to existing research capacity and the infrastructure established over the last 15 years to support the development of bioscience companies.

Source: Missouri Department of Economic Development, GITF Waggl Survey Copyright © 2017 Hawthorn Foundation. All rights reserved.







## MAJOR INDUSTRY SECTORS HEALTHCARE

Missouri's health care industry sector encompasses the delivery of health care to patients including hospitals, physicians and other health care providers as well as innovations and systems that impact health care delivery such as health care software and benefits management.



DISTINCT ADVANTAGE: Missouri is home to a top 25 hospital system and 2 nationally-ranked children's hospitals. Missouri also has six medical schools including Washington University which ranks 7<sup>th</sup> nationally and 3 major health care companies.

Source: Missouri Department of Economic Development, GITF Waggl Survey Copyright © 2017 Hawthorn Foundation. All rights reserved.





## MAJOR INDUSTRY SECTORS

Missouri's IT & Analytics industry sector includes computer systems design, software publishers, data processing and storage, business support services, advanced analytics, and specialized design services



DISTINCT ADVANTAGE: Missouri's access to high-speed internet corridors including 2,000 miles of fiber, Google Fiber in Kansas City, NLR and the Internet 2 network provides opportunities for innovation. Other advantages include a strong existing IT employment base, low energy costs, and attractive tax policy for data centers.

Source: Missouri Department of Economic Development, GITF Waggl Survey Copyright © 2017 Hawthorn Foundation. All rights reserved.





## MAJOR INDUSTRY SECTORS ADVANCED MANUFACTURING

Missouri's Advanced Manufacturing industry sector consists of technology-intensive producers of goods and the industries that support them with high concentrations in aerospace and other transportation equipment, electrical equipment and components and HVAC and Commercial Refrigeration equipment.



DISTINCT ADVANTAGE: Missouri is a world leader in aerospace and automobile manufacturing. Missouri's pro-business, low tax and low energy costs combined with Missouri's central location provides an ideal climate for innovative manufacturers.-*Missouri Partnership* 



## **MAJOR INDUSTRY SECTORS** LOGISTICS & TRANSPORTATION

Missouri's Logistics & Transportation industry encompasses various aspects of supply chain management including freight trucking, electronic markets, agents and brokers, inland water transportation, wholesalers, and warehousing and storage.





MORE THAN 1,000 MILES of water transportation on the Mississippi and Missouri Rivers

Why Missouri?

DISTINCT ADVANTAGE: Missouri's central location and expansive transportation network including interstate highways, 2 major waterways, railroad miles and 14 ports places Missouri within reach of most of the U.S. within 1-2 days.-*Missouri Partnership* 

Source: Missouri Department of Economic Development, GITF Waggl Survey Copyright © 2017 Hawthorn Foundation. All rights reserved.



## **MAJOR INDUSTRY SECTORS FINANCIAL SERVICES**

Missouri's Financial Services industry sector is comprised of banking institutions, financial and accounting services, insurance and investment services.



DISTINCT ADVANTAGE: Missouri is home to the 2<sup>nd</sup> largest concentration of financial securities brokers in the U.S. and is a national leader in reinsurance.-*Missouri Partnership* 

Source: Missouri Department of Economic Development, GITF Waggl Survey Copyright © 2017 Hawthorn Foundation. All rights reserved.



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## **OPTIONS GOING FORWARD** POTENTIAL OPTIONS ADDRESS 5 CORE DIMENSIONS OF INNOVATION PROMOTION



Source: Praxis Strategy Group, Bloomberg, Milken Institute, Missouri GITF Copyright © 2017 Hawthorn Foundation. All rights reserved.



## **OPTIONS GOING FORWARD OVERVIEW OF POTENTIAL OPTIONS (1/2)**



### **1. ENVIRONMENT**

- 1. Eliminate red tape and reduce 6. Establish Missouri Rural regulation: make Missouri easiest place to start a business 7. Design international trade
- 2. Create Entrepreneurship Mentor Network
- 3. Establish incubator association 8. Increase entrepreneurial events
- 4. Develop a sister state innovation relationship
- 5. Institutionalize innovation in state government

- **Broadband Office**
- programs to help startups reach global export markets
- in smaller cities
- 9. Reform non-compete laws
- 10. Pursue additional regulatory reform



### 2. IDEAS

- 1. Incentivize collaboration among universities and industry research entities
- 2. Commit to "moonshot" project
- 3. Prioritize proof of concept centers and matching grants
- 4. Establish rural technology incubation centers



- 1. Launch "come home" campaign to attract state's diaspora back to help Missouri
- 2. Create innovative skill-based/ technical/real world degree programs outside of or accelerating 4-year college
- 3. Adapt K-12 curriculum to improve technical skills training
- 4. Focus on attracting and retaining Millennials/GenZ
- 5. Encourage and educate people to view entrepreneurship as a valid career choice
- 6. Target aid for students pursuing technology and science degrees

Source: Governor's Innovation Task Force Activities. Accenture Research Copyright © 2017 Hawthorn Foundation. All rights reserved.



## **OPTIONS GOING FORWARD OVERVIEW OF POTENTIAL OPTIONS (2/2)**



### 4. CAPITAL & CREDIT AVAILABILITY

- 1. Continue current MTC model
- 2. Decentralize management of preventure risk capital to private nonprofit organizations
- 3. Create Missouri Innovation Fund
- 4. Create comprehensive online funding resources for startups
- 5. Incentivize non-dilutive grant matching
- Tax Policy: R&D Tax Credits; "IP Box"; Income Tax Holiday; Capital Gains Deduction; Angel Tax Credit; Philanthropic Tax Credits; Simple, Fair, and Low Tax System; Accelerated depreciation; Transferable net operating losses
- Develop micro-finance programs to support underserved urban and rural populations



- 1. Pick 1-3 industry sectors and focus on being nationwide or global not regional leader
- 2. Launch marketing initiative promoting innovation storylines to national audience
- 3. Make big state investment in 1 sector to signal commitment
- 4. Solicit involvement from Venture Capitalists and investors from around the world
- 5. Hold large innovation events focused on drawing groups of external stakeholders
- 6. Support regional branding initiatives



# OPTIONS: ENVIRONMENT

### DESCRIPTION

Eliminate all unnecessary regulations and make Missouri the easiest place in the country to start a business. Redesign the State regulatory regime for entrepreneurs with designed-centered thinking.

### RATIONALE

Complete review of all regulations with an eye to eliminating any that are unnecessary, redundant, or overly burdensome. It could also innovate and streamline the business formation process through digitization and customer-centric process improvement in critical departments such as Department of Economic Development, Department of Revenue, and Department of Insurance, Financial Institutions and Professional Registration, as well as the Secretary of State's Office. The State could partner with top consulting firms and design-thinking workshops to reform its environment, making it easier for entrepreneurs to launch, grow, and exit their businesses.

<ul> <li>PROS</li> <li>Benefits all business, not just entrepreneurs</li> <li>Truly innovative approach— few States tackling</li> </ul>	<ul> <li>CONS</li> <li>Potential costs to implement program</li> <li>Not clear how significant an impact this would have on tech entrepreneurship specifically</li> </ul>
<ul> <li>STATE ACTION</li> <li>Executive action</li> <li>Legislative action</li> <li>Convene entrepreneur and business groups in process dialogue</li> </ul>	<ul> <li>SUCCESSFUL EXAMPLES</li> <li>Utah's loosening of non-compete laws</li> <li>Current NoMORedTape initiative</li> </ul>





## **OPTIONS: ENVIRONMENT** 2. CREATE ENTREPRENEUR MENTOR NETWORK

### DESCRIPTION

Establish a State-wide network of institutions (e.g., MU Extension, Innovation Centers, economic development organizations, universities (public and private) and community colleges) and experienced private sector mentors to share best practices, develop common programs, support internships, etc. to coach and develop new entrepreneurs across Missouri.

### RATIONALE

While many programs exists, there continues to be a demand across the State for quality coaching and mentorship for new entrepreneurs. A backbone for such a network already exists in every county through the MU Extension Service, universities and colleges, and economic development organizations.

Current programs do not always reflect best practice nor tap fully into the potential network of experienced practitioners who would be willing to serve the citizens of Missouri in this way.

PROS	CONS
<ul> <li>Limited resource requirements by leveraging existing institutions and relying upon volunteers</li> <li>Reaches every community in Missouri</li> <li>Provides flexible, adaptable model tailored to local needs</li> </ul>	<ul> <li>Risk that volunteers do not meet demand, or are not of high quality especially in areas away from established "ecosystems"</li> <li>Potential for continued fragmentation of efforts across institutions leads to sub-scale outcomes</li> </ul>
STATE ACTION	SUCCESSFUL EXAMPLES
<ul> <li>Executive</li> </ul>	<ul> <li>Numerous ecosystem mentor programs</li> </ul>



## **OPTIONS: ENVIRONMENT** 3. ESTABLISH INCUBATOR ASSOCIATION TO SUPPORT SMALL VENTURE CREATION ACROSS STATE

### DESCRIPTION

Help establish an incubator association to promote collaboration and knowledge-sharing between various incubators and innovation centers around the State. (Could be linked with establishment of Missouri Business Builder Mentor Network.)

### RATIONALE

Several leaders of incubators and innovation centers have reported a lack of coordination and inefficient sharing of knowledge and resources during the Task Force's feedback process. These leaders believe that an association would create a better framework for collaboration.

<ul> <li>PROS</li> <li>Low cost</li> <li>Helps bridge rural-urban divide</li> <li>Supports existing infrastructure by making it more efficient and effective</li> </ul>	CONS <ul> <li>Incubators still likely to vary widely in terms of efficiency and effectiveness</li> </ul>
STATE ACTION         Executive action         Private sector collaboration	<ul> <li>SUCCESSFUL EXAMPLES</li> <li>South Carolina "Small Business Development Centers" in partnership with Clemson University</li> </ul>





## OPTIONS: ENVIRONMENT

### DESCRIPTION

Partner with other high-innovation state to develop talent-sharing, commercialization, research, and investment cooperation.

### RATIONALE

By establishing a collaborative framework with a high-innovation coastal state, Missouri could leverage its strengths and begin to establish a pipeline of talent, funding, research-sharing, and commercialization. Massachusetts is ranked highest in innovation according to Bloomberg and could be a potential partner. MO could share agtech, crop research, and waterway/road access. MA could share world-class mentors, models of successful innovation organizations, and investor access. STL already has several partnerships with Boston area organizations where STL/Boston was second expansion site: Venture Cafe, Sling Health, CIC. WashU Chancellor is past Provost at MIT. And the idea for CORTEX was inspired from a visit and tour of the Boston innovation community.

PROS	CONS
<ul> <li>Limited cost</li> </ul>	<ul> <li>Finding the "right" partner State</li> </ul>
<ul> <li>Could potentially help address key challenges around talent</li> </ul>	<ul> <li>Difficult to measure impact</li> </ul>
attraction, branding, and access to capital	<ul> <li>Negotiating framework could be challenging, as partner State would want to protect its own talent and capital assets</li> </ul>
STATE ACTION	SUCCESSFUL EXAMPLES
<ul> <li>Executive action</li> </ul>	<ul> <li>Massachusetts sister state relationships with international states</li> </ul>
<ul> <li>Private sector and academic collaboration</li> </ul>	and provinces
<ul> <li>Legislative action</li> </ul>	





## **OPTIONS: ENVIRONMENT** 5. INSTITUTIONALIZE INNOVATION IN STATE GOVERNMENT

### DESCRIPTION

"Institutionalize innovation" by creating a high level cabinet role, such as Chief Innovation Officer, or by dedicating DED resources to innovation.

#### RATIONALE

Creating a cabinet level role or new department-level role would give the state government a permanent, high-level advocate for innovation. Other States, such as Rhode Island and Colorado, have already done this. Without a consistent voice within the state government, innovation is at risk of taking a back seat to other priorities.

PROS	CONS
<ul> <li>Provides a structural voice for innovation initiatives within the state government</li> <li>Facilitates coordination of state government efforts and programs</li> <li>Strongly signals Missouri's commitment to innovation</li> </ul>	<ul> <li>Adds to State bureaucracy</li> <li>Role does not solve anything—heavily dependent on quality of hire and of innovation initiatives and may take innovation "out of the mainstream" of policy making and priorities</li> </ul>
STATE ACTION <ul> <li>Executive action</li> <li>Legislative action</li> </ul>	<ul> <li>SUCCESSFUL EXAMPLES</li> <li>Colorado, Rhode Island, Louisville KY</li> </ul>


# **OPTIONS: ENVIRONMENT 6. ESTABLISH MISSOURI RURAL BROADBAND OFFICE**

#### DESCRIPTION

Establish a State broadband office to coordinate existing and future long-term efforts to expand access to high-speed internet throughout the state, especially in rural areas.

#### RATIONALE

Rural Missouri needs infrastructure that can supply connections with higher bandwidth. While telecommunications companies and rural electric co-ops are making progress, a State-level entity can support the private sector by collecting more data, coordinating State and federal resources to maximize their impact, and targeting legal or administrative barriers to expansion.

<ul> <li>PROS</li> <li>Enhances education by giving rural students access to courses their districts may not be able to support</li> <li>Allows farmers to take advantage of high-tech agriculture</li> <li>Encourages entrepreneurship by expanding access to markets, technology, and workers</li> <li>Improves health care quality through telemedicine</li> </ul>	<ul> <li>CONS</li> <li>Creates new State office</li> <li>Absence of short-term return on investment for "last mile" rural connections may call for substantial state and federal funding</li> </ul>
STATE ACTION <ul> <li>Executive</li> <li>Legislative</li> </ul>	<ul> <li>SUCCESSFUL EXAMPLES</li> <li>Minnesota Office of Broadband Development</li> </ul>



### **OPTIONS: ENVIRONMENT** 7. DESIGN INTERNATIONAL TRADE PROGRAMS TO HELP STARTUPS REACH GLOBAL EXPORT MARKETS

#### DESCRIPTION

Establish international trade programs to help Missouri startups reach global export markets.

#### RATIONALE

Missouri's Ag/Plant Tech companies, along with those in many other industry clusters, could benefit from strong international trade programs that immediately develop strategies for international market entry and expansion. Missouri startups have a borderless world view and can thrive in the international arena.

PROS	CONS
<ul> <li>Low cost by leveraging existing programs and resources</li> </ul>	<ul> <li>No guarantee of bottom line results</li> </ul>
<ul> <li>Benefits multiple industries</li> </ul>	<ul> <li>Many startups, particularly tech startups, do not export product</li> </ul>
<ul> <li>Short term opportunity to increase exports</li> </ul>	to global markets
	<ul> <li>Greatest potential impact from more established companies,</li> </ul>
	not startups
STATE ACTION	SUCCESSFUL EXAMPLES
<ul> <li>Executive action</li> </ul>	• G-Map



### **OPTIONS: ENVIRONMENT** 8. INCREASE ENTREPRENEURIAL EVENTS IN SMALLER CITIES TO SUPPORT EARLY STAGE COMPANIES

#### DESCRIPTION

Increase the number and quality of entrepreneurial and innovation-themed events in smaller cities.

#### RATIONALE

While Missouri's larger cities – notably Kansas City and St. Louis – have robust entrepreneur ecosystems and offer a wide range of highquality entrepreneurial events, the same is not true for most smaller communities. Entrepreneurs in these small towns and cities need additional support and networking to help them learn how to launch and grow their businesses.

<ul> <li>PROS</li> <li>Bridges urban-rural divide</li> <li>Limited cost by leveraging existing institutions and networks</li> <li>Could be linked to a new Mentorship Network</li> </ul>	<ul> <li>CONS</li> <li>No clear link between events and business formation</li> <li>Unclear whether this would result in high-quality entrepreneurship</li> <li>Must balance with statewide events to avoid regionalism</li> </ul>
STATE ACTION	SUCCESSFUL EXAMPLES
<ul> <li>Executive action</li> </ul>	<ul> <li>Startup Weekend</li> </ul>
<ul> <li>Private sector collaboration</li> </ul>	<ul> <li>SENASoft: nationwide event in Colombia, South America</li> </ul>



# **OPTIONS: ENVIRONMENT** 9. REFORM NON-COMPETE LAWS

#### DESCRIPTION

Reform non-compete law (e.g., limit scope, duration, and improve transparency) to increase rate of startups.

#### RATIONALE

Entrepreneurs typically draw on previous experience, knowledge, and relationships to start new businesses. They often develop these while working for a more established business. While recognizing the need for reasonable intellectual property protections, strict non-compete enforcement – i.e., preventing a former worker from ever opening a business that could compete with his former employer – can block new business creation and limit entrepreneurial spin-outs.

<ul> <li>PROS</li> <li>Launch new businesses quickly</li> <li>Rapid dissemination of ideas and technology</li> <li>Dynamic and competitive market</li> </ul>	<ul> <li>CONS</li> <li>Establish firms pursue less-risky R&amp;D or are otherwise incentivized in counterproductive ways</li> </ul>
<ul> <li>STATE ACTION</li> <li>Legislative action</li> <li>Administrative action</li> </ul>	<ul> <li>SUCCESSFUL EXAMPLES</li> <li>California does not enforce</li> <li>Utah limited non-competes to 1-year</li> <li>Oregon requires employers to disclose in offer letter</li> </ul>





# **OPTIONS: ENVIRONMENT** <u>10. PURSUE ADDITIONAL REGULATORY REFORM</u>



#### DESCRIPTION

Further leverage potential of states rights to create a more accommodative regulatory environment for growth in certain industries

#### RATIONALE

States have a Constitutional right to enact legislation and regulations that may preempt federal laws. To promote innovation and a dynamic technology start-up environment, Missouri should seek to ease or enact new regulations that stimulate emerging industry growth. Such examples include: enacting drug development regulations that enable new immunotherapy drugs to be approved for human trials (in MO); medical service models (DPC); reduce cyber tort risk; free up UAV air spaces; adapt labor laws to increase 1099/part time economy; and free up energy (PUC) regulations to accentuate CO-OP model.

<ul> <li>PROS</li> <li>Immediately creates a positive environment for research and development and the creation of new companies</li> <li>Attracts and retains the best and brightest who now have less constraints on evolving markets</li> <li>Creates a leveraging effect that helps stimulate growth for the entire ecosystem that sustains these industries</li> </ul>	<ul> <li>CONS</li> <li>Potential to be accused of "picking" industries to support – vs. focusing on more broad initiatives that assist all businesses</li> <li>If not properly structured, reforms could be removed by future administrations - thus creating uncertainties among companies and investors as to the long-term viability of the approach.</li> </ul>
<ul> <li>STATE ACTION</li> <li>Review major State regulations that inhibit growth in select high growth, technology and life sciences industries</li> <li>Remove outdate non-safety of life regulations</li> </ul>	<ul> <li>SUCCESSFUL EXAMPLES</li> <li>An AUVSI study projected that the first decade of fully integrating drones into California's airspace would bring more than 18,000 jobs and an economic impact of \$14 billion to CA</li> </ul>



### **OPTIONS: IDEAS** 1. INCENTIVIZE COLLABORATION AMONG UNIVERSITIES AND INDUSTRY RESEARCH ENTITIES

#### DESCRIPTION

Create frameworks that incentivize research and commercialization collaboration among universities and industry groups.

#### RATIONALE

While Missouri has some concentrated strengths in academic research (notably at Washington University and, to a lesser extent, the University of Missouri), commercialization of research is often sporadic and not well-coordinated across institutions.

The State could accelerate research commercialization by establishing frameworks for collaboration among universities – public and private – and industrial research facilities.

<ul> <li>PROS</li> <li>Low cost</li> <li>Leverages significant research dollars already flowing into the system</li> </ul>	<ul> <li>CONS</li> <li>Huge imbalance in research activity and funding may make it difficult to get competitive institutions to work together</li> </ul>
<ul> <li>STATE ACTION</li> <li>Executive action</li> <li>Legislative action</li> <li>Academia and private sector collaboration</li> </ul>	SUCCESSFUL EXAMPLES





# **OPTIONS: IDEAS** 2. COMMIT TO "MOONSHOT" PROJECT



Set a bold "moonshot" goal (such as the building of a Hyperloop between KC and STL) as a challenge to establish Missouri's credentials as state truly committed to innovation and risk taking.

#### RATIONALE

A "moonshot" project or initiative has the potential to rally diverse innovation constituencies to a common cause and would focus national attention on Missouri. This would not only spur creativity, but also help with overall branding and talent attraction to the state.

PROS	CONS
<ul> <li>Would attract significant national and possibly global attention</li> </ul>	<ul> <li>Risk of public failure</li> </ul>
<ul> <li>Could unify various constituencies around an ambitious</li> </ul>	<ul> <li>Potentially high cost</li> </ul>
agenda	<ul> <li>Results could be outside of state control</li> </ul>
STATE ACTION	SUCCESSFUL EXAMPLES
<ul> <li>Executive action</li> </ul>	<ul> <li>Google Fiber: Kansas City</li> </ul>
<ul> <li>Legislative action</li> </ul>	<ul> <li>Washington University's role in Human Genome Project</li> </ul>
<ul> <li>Budget approval</li> </ul>	<ul> <li>I-70 (first interstate), Gateway Arch</li> </ul>





### **OPTIONS: IDEAS** 3. PRIORITIZE PROOF OF CONCEPT CENTERS AND MATCHING GRANTS



Prioritize increasing funding for proof of concept centers and matching grants in Missouri's innovation model, primarily through providing state incentives for increasing private investment and public/private partnerships

#### RATIONALE

Though the analysis performed for the academic units reveals that IDEA funds in the MTC have provided good return of capital relative to peers, the analysis showed that a funding gap exists in Missouri particularly. States with a similar economic situation as Missouri that were considered more innovative and those identified as sources of novel programs with potential applicability to Missouri included Utah, Michigan, Ohio, Vermont, Massachusetts, Maryland, and Virginia. Trends identified in these states include the use of state, university, and private funds to foster successful innovation programs, establishment of proof-of-concept centers for pilot innovation programs catalyzed by state support, and federal grant-matching programs to promote objectivity in awarding state funds to researchers and companies who apply for state-sponsored programs. In particular, these types of programs helped to foster more collaboration between university and state-wide initiatives.

<ul> <li>PROS</li> <li>Proof of concept (POC) funding assist in areas with less developed entrepreneurial ecosystems</li> <li>POC: Greater access to such dollars improves reach of federal translation areas.</li> <li>Grant matching has low overhead, keeps innovation in the state, and is attractive to private capital investors</li> <li>Public Private Matching: increases private interest, expertise</li> </ul>	<ul> <li>CONS</li> <li>POC: Expertise for efficient distribution of dollars is often dissociated from the points of need</li> <li>POC: There is the potential to increase access to funding but not increase the overall flow of quality deals in the state. Tracking metrics can be challenging</li> <li>Grant Matching program structures can have long or infrequent funding cycles and program structure needs care to be tailored to state needs</li> <li>Public Private Matching: Misalignment of interests</li> </ul>
<ul> <li>STATE ACTION</li> <li>Reinitiate the Research Alliance of Missouri to include cooperation from research intensive institutions (translation) and teaching intensive institutions (training). Expand membership to include Chief Translation Officers at research intensive universities</li> <li>Reprioritize dollars for proof of concept funds and matching grants from less productive capital investment</li> <li>Establish State as customer program for cost neutral investment in startups</li> </ul>	EXAMPLES • Virginia CIT (Grant Matching) • Utah USTAR Program (Industry-University Partnership) • Kentucky SBIR-STTR Matching Funds (Grant Matching) • Massachusetts START (Grant Matching) • Maryland Innovation Initiative (POC)
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# **OPTIONS: IDEAS** 4. ESTABLISH RURAL TECH INCUBATION CENTERS



#### DESCRIPTION

Establish rural technology incubation centers to support new technology company formation and development in rural and nonmetropolitan areas.

#### RATIONALE

Rural communities often lack the expertise to support the development of technology businesses. Creating a program where expertise in intellectual property, technology evaluation, and product development is available to rural entrepreneurs is critical for the advancement rural technology innovation. Technology Villages is a pilot project of Stirius, a for-profit working in conjunction with Clemson University. Technology Villages are community storefront incubators supported by a Regional Entrepreneurial Development Center that blend real-time distance entrepreneurial learning with hands-on support from the incubator director and MBA students trained in the "technology company development process."

<ul> <li>PROS</li> <li>Bridges the tech development know-how gap in rural areas</li> <li>Technology Villages are proven with documented best practices</li> <li>Stirius is helping other states establish Technology Villages in rural communities</li> </ul>	<ul> <li>CONS</li> <li>Need to identify a university partner</li> <li>Need entity to provide coordination and oversight of multiple rural pilot projects</li> </ul>
<ul> <li>STATE ACTION</li> <li>State can assist in evaluation of model</li> <li>Extend Small Business Incubation Tax Credits to include operating expenses and salaries to help establish this new program</li> </ul>	<ul> <li>EXAMPLES</li> <li>Technology Villages is a proven model that is generating technology companies at a prolific rate in rural South Carolina</li> </ul>





### **OPTIONS: TALENT** 1. LAUNCH "COME HOME" CAMPAIGN TO ATTRACT STATE'S DIASPORA BACK TO HELP MISSOURI

#### DESCRIPTION

An integrated campaign by State government, private sector employers, local economic development organizations, and higher education institutions to identify skilled Missourians who are "leaving abroad" in the United States, and then encourage them to support entrepreneurship and innovation at home by either relocating, investing, and/or mentoring Missouri start-ups. Such an effort would reinforce a broader state-wide branding effort with targeted messages (e.g., targeting Missouri university graduates working in Silicon Valley who now have families and desire a better cost of living/quality of life).

#### RATIONALE

Significant talent migrates out of Missouri, especially among young professionals who seek a "coastal" experience. Attempting to recruit such talent that already has lived in Missouri, has social and family networks here, and understand the state's benefits has a higher probability of success than recruiting talent without Missouri or Midwest roots. Even those who may not want to relocate may be willing to "pay back" to their home state by investing, mentoring, etc.

<ul> <li>PROS</li> <li>Higher probability of success than "generic" recruiting</li> <li>Reinforces other brand efforts</li> <li>Distinctive network of Missourians (e.g., John Doerr)</li> </ul>	<ul> <li>CONS</li> <li>If not managed well, risk losing newcomers as soon as they arrive.</li> <li>Cost per recruit back may excessive</li> </ul>
STATE ACTION <ul> <li>Executive action</li> <li>Legislative action</li> </ul>	<ul> <li>SUCCESSFUL EXAMPLES</li> <li>Homecoming Revolution (South Africa): launched originally in 2003 as nonprofit campaign to reverse "brain drain" from post-apartheid South Africa; 350,000+ skilled workers returned</li> <li>Talent St. Louis Transplants (http://www.stltransplants.com)</li> </ul>



### **OPTIONS: TALENT** 2. CREATE INNOVATIVE SKILL-BASED/ TECHNICAL/ **REAL WORLD DEGREE PROGRAMS OUTSIDE OF OR** ERATING 4-YEAR COLLEGE

#### DESCRIPTION

Become a national leader in offering non-traditional technical degree programs to its workforce and enhanced aid programs for students pursuing tech and science degrees through these programs.

#### RATIONALE

Students enrolled in STEM degree programs could receive enhanced aid from Missouri, possibly including loan forgiveness and scholarships, if they meet residency and achievement requirements.

<ul> <li>PROS</li> <li>Growth in the innovation economy will require a technically literate workforce</li> <li>Would encourage rapid development of home-grown talent</li> <li>Aligns state workforce needs with educational priorities</li> </ul>	<ul> <li>CONS</li> <li>High cost at a time when state education budgets are already constrained</li> <li>Long-term plan</li> </ul>
STATE ACTION	SUCCESSFUL EXAMPLES
<ul> <li>Executive action</li> </ul>	Rankin Tech in Missouri
<ul> <li>Legislative action</li> </ul>	Missouri Innovation Campus
<ul> <li>Academia collaboration</li> </ul>	Center for Advanced Placement Professional Studies (CAPS)









### **OPTIONS: TALENT** 3. ADAPT K-12 CURRICULUM TO IMPROVE TECHNICAL SKILLS TRAINING

DESCRIPTION

Encourage or require technical education (i.e., computer science/coding) in K-12 curriculum and/or after school program.

#### RATIONALE

By introducing all students to the basic precepts of technical education, Missouri could help prepare future generations for an innovation-driven workforce. Several other states, including Iowa, Arkansas, and Texas, have already begun to introduce computer science and coding into their K-12 curriculum.

<ul> <li>PROS</li> <li>Growth in the innovation economy will require a technically literate workforce</li> <li>Cuts across rural-urban, regional divides</li> <li>Prepares Missouri students to compete regardless of their career choices</li> <li>Can be done relatively inexpensively based on approach of other States</li> </ul>	<ul> <li>CONS</li> <li>State education budgets are already constrained</li> <li>Introduction of this training could require cuts in other important areas</li> <li>Potential for limited teachers with technical skills</li> <li>Long-term plan</li> </ul>
<ul> <li>STATE ACTION</li> <li>Executive action</li> <li>Legislative action</li> <li>Collaboration with school districts/school boards</li> </ul>	<ul> <li>SUCCESSFUL EXAMPLES</li> <li>LaunchCode</li> <li>Iowa, Texas, Arkansas curriculum reform initiatives via Code.org</li> </ul>





### **OPTIONS: TALENT** 4. FOCUS ON ATTRACTING AND RETAINING MILLENNIALS/GEN Z

DESCRIPTION

Target Millennial and GenZ attraction and retention by offering micro-loans, exposure to startup scene, education of entrepreneurship as a valid career choice, etc.

RATIONALE

Millennials are attracted to authenticity and problem solving. St. Louis recently ranked as one of the top places for Millennials to live and work. If the state could market itself as an attractive destination for this demographic cohort, Missouri companies would be in a better position to attract and retain young talent.

<ul> <li>PROS</li> <li>States like Missouri are increasingly attractive to Millennials due to lower cost of living, quality of life amenities</li> <li>Goes to one of the "root problems" limiting innovation in Missouri</li> <li>Reinforces overall branding effort</li> </ul>	<ul> <li>CONS</li> <li>Potentially expensive with no guarantee of success</li> <li>Not clear that marketing campaigns or grants programs will result in in-migration or retention of these target groups at scale</li> </ul>
STATE ACTION         Executive action         Legislative action	SUCCESSFUL EXAMPLES <ul> <li>LouFest U</li> <li>Arch Grants in St. Louis</li> </ul>







### **OPTIONS: TALENT** 5. ENCOURAGE AND EDUCATE PEOPLE TO VIEW ENTREPRENEURSHIP AS A VALID CAREER CHOICE

#### DESCRIPTION

Use educational programs and resources to encourage more people to view entrepreneurship as a valid career choice. Elements could include integration into high school curriculum, marketing campaign targeting youth with entrepreneurs' stories, entrepreneurial mentor network, statewide job fair or conference for entrepreneurial management positions, etc.

#### RATIONALE

Entrepreneurs in high-innovation areas such as NY, Boston, and SF are inherently "de-risked" because of the perception that involvement in startups, even unsuccessful ones, represents a valid career choice. Missouri entrepreneurs do not enjoy the same degree of cultural support and therefore experience more career risk when they choose to launch or work for startups.

PROS	CONS
<ul> <li>Goes to one of the "root problems" limiting innovation in</li> </ul>	<ul> <li>Long-term play that requires changing entrenched cultural</li> </ul>
Missouri	attitudes
<ul> <li>More entrepreneurs</li> </ul>	<ul> <li>Lacks decisive evidence on which strategies or tactics would</li> </ul>
<ul> <li>More jobs created</li> </ul>	achieve this goal
	<ul> <li>Potential high costs depending on nature of programs</li> </ul>
STATE ACTION	SUCCESSFUL EXAMPLES
<ul> <li>Executive action</li> </ul>	<ul> <li>Blue Valley CAPS, DECA chapters, LEP High Portland</li> </ul>
<ul> <li>Legislative action</li> </ul>	



### **OPTIONS: TALENT** 6. TARGET AID FOR STUDENTS PURSUING TECHNOLOGY AND SCIENCE DEGREES

#### DESCRIPTION

Offer enhanced aid programs for students pursuing tech and science degrees in target fields.

#### RATIONALE

Students enrolled in STEM degree programs could receive enhanced aid from Missouri, possibly including loan forgiveness and scholarships, if they meet residency and achievement requirements.

PROS	CONS
<ul> <li>Growth in the innovation economy will require a technically literate workforce</li> <li>Would encourage rapid development of home-grown talent</li> <li>Aligns State workforce needs with educational priorities</li> </ul>	<ul> <li>High cost at a time when State education budgets are already constrained</li> </ul>
STATE ACTION	SUCCESSFUL EXAMPLES
<ul> <li>Executive action</li> </ul>	
<ul> <li>Legislative action</li> </ul>	
<ul> <li>Academic collaboration</li> </ul>	





# **OPTIONS: CAPITAL & CREDIT 1. CONTINUE CURRENT MTC MODEL**

#### DESCRIPTION

Continue current MTC program unchanged with funding divided among equity matching investments, operational support for ecosystem partners, and regional innovation centers.

#### RATIONALE

Program would allow state to continue to use existing program, support infrastructure, and networks in roughly same approach as has been pursued for past decade.

<ul> <li>PROS</li> <li>No special startup or other requirements</li> <li>Regulatory framework already exists</li> <li>Innovation centers and entrepreneurial support organizations in all areas of the state continue to receive funding</li> </ul>	<ul> <li>CONS</li> <li>Annual budget process is unpredictable</li> <li>Low or uncertain levels of support in state government for current approach</li> <li>Questions about effectiveness of some programs</li> <li>Lack of significant corporate and other private sector sponsors for some programs</li> <li>Current funding process often viewed as cumbersome, time consuming</li> </ul>
STATE ACTION <ul> <li>Executive action</li> <li>Legislative action</li> </ul>	SUCCESSFUL EXAMPLES

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# **OPTIONS: CAPITAL & CREDIT** 2. DE-CENTRALIZE MANAGEMENT OF PRE-VENTURE RISK CAPITAL TO PRIVATE NONPROFIT ORGANIZATIONS

#### DESCRIPTION

De-centralize current MTC-approach and deploy pre-venture risk capital to nonprofit, professionally managed venture development organizations (VDOs) around the state to operate and invest in local startups.

#### RATIONALE

Deploy pre-venture risk capital to help create and develop startups to point where they are competitive for venture capital investors across the country. Each region of the state develops a professionally managed, highly functioning, value-add organization capable of competing for state funds. State funds are then leveraged to enable VDOs to raise other funds. Each state region develops its own region-specific strategy and offerings (mix of specific programs, services, investments).

<ul> <li>PROS</li> <li>Each region is empowered to develop strategy &amp; programs that address its specific needs (e.g., rural vs. urban needs)</li> <li>Provides more patient capital needed to develop high quality deal flow essential to attract downstream investors</li> <li>Can also support businesses that do not appeal to venture investors, yet generate critical outcomes (jobs, tax revenues)</li> <li>Precedent: examples of highly functioning VDOs exist in MO</li> </ul>	<ul> <li>CONS</li> <li>A competitive application process and key metrics are needed to ensure only high quality VDOs receive state support</li> <li>State funding is only partial; each region needs to provide remaining funding needed for operations and investments</li> <li>VDOs may have inconsistent management skills, and will need strong collaboration with other organizations and institutions in their region</li> <li>State budget is constrained and potential for political challenges when time comes to allocate resources across regions</li> </ul>
STATE ACTION  Legislative action Executive action	<ul> <li>SUCCESSFUL EXAMPLES</li> <li>Pennsylvania's Ben Franklin Technology Partners (e.g., Innovation Works)</li> <li>Ohio's Third Frontier model (e.g., JumpStart, Rev1, CincyTech)</li> </ul>



# **OPTIONS: CAPITAL & CREDIT 3. CREATE MISSOURI INNOVATION FUND**

#### DESCRIPTION

State drives creation of and co-invests in professionally managed fund with mix of public/private dollars focused on Missouri startups.

#### RATIONALE

Having a professionally managed fund would attract more risk-sensitive investors and give the state the reporting and RoI focus it needs to sustain support. The state could catalyze/capitalize the fund, either via budget process or bonds, but a significant share of the money could come from the private sector. Missouri would hire a professional manager or contract with a professional VC firm. The state would get a percentage of the carry, which can be re-invested as evergreen dollars back into the fund. Missouri could encourage state pension funds and other state institutions (e.g., university endowments) to invest in the fund as well.

<ul> <li>PROS</li> <li>Highly experienced professional management; catalyzes more investors to join; can focus on specific industry sectors; increased probability of quality exits</li> <li>State fund provides an encouraging signal and reinforces brand</li> <li>Corporations provide additional support and others could invest alongside state</li> <li>Potentially opens up significantly more capital for investment</li> </ul>	<ul> <li>CONS</li> <li>Funding may gravitate towards later stage startups where returns are better</li> <li>State is not experienced at creating funds or balancing RoI and economic development goals</li> <li>Funding mechanisms must be structural, and not tied to annual budget allocation process</li> <li>If fund is not successful, it will discourage future investment</li> </ul>
STATE ACTION         • Executive action         • Legislative action         • Private sector collaboration	SUCCESSFUL EXAMPLES         Ohio \$1 billion fund         Wisconsin Alumni Research Foundation (\$6bn)         MIC Accelerator Fund in Columbia

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### **OPTIONS: CAPITAL & CREDIT 4. CREATE COMPREHENSIVE ONLINE FUNDING RESOURCES FOR STARTUPS**

#### DESCRIPTION

Provide comprehensive online funding resources and education for MO entrepreneurs (e.g. capital markets roadmap, access to credit guide, etc.) to help them better understand and navigate their funding options.

#### RATIONALE

Not all startups are appropriate for equity financing. Midwestern businesses have greater familiarity and comfort with more traditional forms of debt financing, yet lending institutions are not always set up to properly evaluate creditworthiness of new entrepreneurial enterprises. Many first-time entrepreneurs struggle to understand the various funding sources, structures, and sources that are already available to them. Providing an easy-to-use resource would accelerate their learning and help them raise capital more efficiently.

PROS	CONS
<ul> <li>Provides a meaningful solution to a problem cited by many</li> </ul>	<ul> <li>Would require continual maintenance, updating by the state.</li> </ul>
Missouri entrepreneurs	<ul> <li>Does not necessarily lead to increased capital availability</li> </ul>
<ul> <li>Does not require direct state investment</li> </ul>	<ul> <li>Banks may be unwilling or unable to make loans to what they</li> </ul>
<ul> <li>Debt financing may be more suitable for a broader range of</li> </ul>	perceive to be high risk ventures
new companies	<ul> <li>Many entrepreneurs may already be debt-strapped and therefore</li> </ul>
<ul> <li>Demand for alternate financing already exists in marketplace</li> </ul>	unwilling to take on additional debt
STATE ACTION	SUCCESSFUL EXAMPLES
Executive action	<ul> <li>MEDA, Scale Up Milwaukee, KCSourcelink</li> </ul>



# **OPTIONS: CAPITAL & CREDIT** 5. INCENTIVIZE NON-DILUTIVE GRANT MATCHING

<b>DESCRIPTION</b> State provides incentives to businesses and individuals who match grant funding for startups and support organizations.		
<b>RATIONALE</b> Tax code reform could make it more attractive for companies and private individuals to donate to entrepreneurs and entrepreneurial support organizations in the Missouri ecosystem.		
<ul> <li>PROS</li> <li>Grant funding is highly attractive to entrepreneurs</li> <li>A number of existing organizations already provide grant funding, meaning that the structure already exists</li> <li>Missouri is a highly "charitable" state, and grant funding may be more attractive to some entities than investing risk capital</li> </ul>	<ul> <li>CONS</li> <li>Places further strain on state budget</li> <li>Could divert capital that might otherwise be invested into startups, generating an ROI</li> </ul>	
STATE ACTIONExecutive actionLegislative actionPrivate sector collaboration	SUCCESSFUL EXAMPLES <ul> <li>Federal SBIR/STTR grants</li> </ul>	



### **OPTIONS: CAPITAL & CREDIT** 6A. TAX POLICY: RESEARCH AND DEVELOPMENT TAX CREDITS

#### DESCRIPTION

Create a Research and Development (R&D) Tax Credit that would provide a business with credit against tax that corresponds to the amount the business spends on certain expenditures associated with R&D.

#### RATIONALE

Offering a direct R&D Tax Credit would incentivize Missouri businesses to invest in innovation through research and development. Missouri currently rewards innovation through its New Enterprise Creation Credit, which provides a credit for contributions to qualified funds that invest in R&D-performing businesses. A direct R&D Tax Credit, instead, would benefit businesses that choose to redirect capital towards their own R&D.

<ul> <li>PROS</li> <li>Allows Missouri to keep up with many states that offer R&amp;D credit</li> <li>Can encourage research investment by companies with Missouri activity</li> </ul>	<ul> <li>CONS</li> <li>Some economists oppose the federal R&amp;D tax credit in favor of a lower general corporate tax rate</li> <li>The Tax Foundation criticizes R&amp;D tax credits as complicating taxes and giving government too much discretion</li> <li>Not clear it is a strong incentive</li> </ul>
STATE ACTION  Legislative action Budget approval Clear definition of targeted activities	EXAMPLES <ul> <li>Kansas Research and Development Credit</li> <li>Federal Research and Development Credit</li> <li>US Federal Research and Development Credit</li> </ul>

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### **OPTIONS: CAPITAL & CREDIT** 6B. TAX POLICY: "IP BOX" – INTELLECTUAL PROPERTY TAX EXEMPTION

#### DESCRIPTION

Create an "IP Box'" — also called "Patent Box" or "Innovation Box" — that is tax legislation that taxes income derived from intellectual property at a reduced rate.

#### RATIONALE

Taxing income derived from intellectual property (especially patents) at a reduced rate incentivizes investment in research and development and other IP-related activity for businesses paying Missouri corporate income taxes. If companies can minimize their tax liability by increasing their IP activity, this would encourage companies to redirect resources towards innovation. Companies with substantial IP-related income may also move to this state if they see this proposal creating a favorable IP tax environment.

<ul> <li>PROS</li> <li>The IP Box would encourage IP generation and IP-related manufacturing for companies already in Missouri</li> <li>The IP Box may lead to technology companies with high IP-related income moving to Missouri</li> <li>The IP Box would allow Missouri to distinguish itself as perhaps the only state with such legislation</li> </ul>	<ul> <li>CONS</li> <li>If Federal IP Box legislation is enacted as a tax deduction, Missouri's IP Box might overlap the federal deduction, which can lead to an unplanned revenue reduction</li> <li>Increased tax administration complexities related to determining what portion of income derived from IP-activity</li> </ul>
STATE ACTION <ul> <li>Legislative action</li> <li>Budget approval</li> </ul>	EXAMPLES  Ireland – Knowledge Development Box Belgium – Patent Income Deduction United Kingdom – Patent Box



### **OPTIONS: CAPITAL & CREDIT** 6C. TAX POLICY: INCOME TAX OR EMPLOYER WITHHOLDING-OF-TAX HOLIDAY

#### DESCRIPTION

Establish a corporate income tax or employer withholding-of-tax holiday to provide a period of time in which qualified innovators or entrepreneurs are exempt from paying corporate income tax or remitting employees' income taxes.

#### RATIONALE

A pre-announced corporate income tax holiday or employer withholding-of-tax holiday period could, like a sales tax holiday, spur businesses to move to Missouri, hire new employees or begin a new line of business in Missouri, before they lose the tax holiday benefit.

<ul> <li>PROS</li> <li>Might cause businesses that were considering a move to Missouri to complete that transition within the tax holiday period</li> <li>If applied to startup businesses, the tax holiday could alleviate financial and other burdens, encouraging startup formation</li> </ul>	<ul> <li>CONS</li> <li>Could lead to a material reduction in revenue affecting government functioning</li> <li>Unclear drafting may lead to litigation as to which businesses qualify for the tax holiday</li> </ul>
<ul><li>STATE ACTION</li><li>Legislative action</li><li>Budget approval</li></ul>	<ul> <li>EXAMPLES</li> <li>Philippines - Income Tax Holiday for Export Businesses</li> <li>Suggested on the federal level by former Congresswoman Michele Bachman</li> </ul>



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### **OPTIONS: CAPITAL & CREDIT** 6D. TAX POLICY: CAPITAL GAINS DEDUCTION FOR INNOVATION REINVESTMENT

#### DESCRIPTION

Establish a Capital Gains Deduction for Innovation Reinvestment that would provide a tax deduction on capital gains income that is reinvested into innovative or entrepreneurial enterprises. Missouri does not currently tax capital gains at a different rate than ordinary corporate income.

#### RATIONALE

By providing favorable tax treatment to capital gains income that is reinvested into an innovative business, companies seeking a lower tax liability may be incentivized to put funding derived from capital gains into investments in early-stage or research-centered enterprises.

<ul> <li>PROS</li> <li>If the capital gain reinvestment can be restricted to Missouri enterprises, this could lead to increased investment in Missouri's innovative enterprises</li> <li>Reduces the effective tax rate on corporations that do business in Missouri and are able to take advantage of this deduction</li> </ul>	<ul> <li>CONS</li> <li>Criticized as failing to promote economic growth, and as potentially directing money out of the states that offer them (at least for individual income tax)</li> <li>Hard to mandate that capital gains are only reinvested in MO innovative enterprises; may be challenged as unconstitutional.</li> <li>Difficult to administer</li> </ul>
<ul><li>STATE ACTION</li><li>Legislative action</li><li>Budget approval</li></ul>	<ul> <li>EXAMPLES</li> <li>No clear examples of this specific program were found</li> <li>Related Program – Canadian capital gains deduction for sale of certain small business stocks</li> </ul>



# **OPTIONS: CAPITAL & CREDIT 6E. TAX POLICY: ANGEL TAX CREDITS**

#### DESCRIPTION

Establish an Angel Tax Credit Program that would provide angel investors with tax credits for investing in early-stage Missouri businesses.

#### RATIONALE

By providing a tax credit for a certain amount of investment in Missouri startup businesses, Missouri would encourage angel investors to move funding into Missouri to help develop new businesses. To be effective, angel tax credit programs should partner with investors and entrepreneurs.

<ul> <li>PROS</li> <li>Incentivizes risk taking, giving more opportunities to more startups. This in turn creates more jobs in the State</li> <li>Has been shown to generate real economic benefit to the States that have successful programs</li> </ul>	<ul> <li>CONS</li> <li>A poor partnership with the entrepreneurial ecosystem could lead to less benefit to the State</li> <li>Poorly designed limitations on the program could lead to program manipulation by tax professionals</li> </ul>
STATE ACTION <ul> <li>Legislative action</li> <li>Budget approval</li> </ul>	EXAMPLES Kansas – Angel Investor Tax Act Wisconsin – Angel Investor Tax Credit Hawaii – High Tech Business Investment Credit Kentucky – Kentucky Investment Fund Act





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# **OPTIONS: CAPITAL & CREDIT 6F. TAX POLICY: PHILANTHROPIC TAX CREDITS**

#### DESCRIPTION

Offer a Philanthropic Tax Credit for charitable contributions to nonprofits working on innovation or technology.

#### RATIONALE

A Philanthropic Tax Credit could parallel other Missouri charitable tax credits, to incentivize contributions to the target group: nonprofits working on innovation or technological development. The Missouri Technology Corporation runs a program with a similar purpose, the Seed Capital Co-Investment Program, which matches certain capital investments in high-tech startups.

<ul> <li>PROS</li> <li>Total credit maximums could be established to ensure no unexpected effect on revenue occurs</li> <li>If the Philanthropic Tax Credit legislation is drafted to mimic the tax credits Maryland has put into place, this could create competition to make charitable contributions</li> </ul>	<ul> <li>CONS</li> <li>Missouri's individual income tax already takes into account an individual's charitable contributions that are deducted from federal taxable income</li> <li>May be criticized as a "tax break for the wealthy"</li> <li>Without a total annual cap, revenue loss from this credit can exceed acceptable levels</li> </ul>
<ul><li>STATE ACTION</li><li>Legislative action</li><li>Budget approval</li></ul>	<ul> <li>EXAMPLES</li> <li>No clear examples of this specific program</li> <li>Related Program – Maryland Community Improvement Tax Credit</li> </ul>



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### **OPTIONS: CAPITAL & CREDIT** 6G. TAX POLICY: A SIMPLE, FAIR, AND LOW TAX SYSTEM FOR MISSOURI BUSINESSES

#### DESCRIPTION

Establish a simple, fair, and low tax system would eliminate many special tax credits and deductions and directly reduce tax rates for all businesses and individuals.

#### RATIONALE

By eliminating special tax credits and deductions, Missouri can reduce the complexity of its tax regime and apply the tax savings to a reduction of overall tax rates. This would reduce the tax burden for all businesses and reduce the complexity in tax compliance.

<ul> <li>PROS</li> <li>A simple, fair, and low tax system reduces the barriers to entry for new businesses</li> <li>A simple, fair, and low tax system reduces tax administration expenses for government and tax compliance costs for business</li> <li>Unlike other proposals, a simple, fair, and low tax system would be significantly less likely to trigger a constitutional challenge for discrimination against interstate commerce</li> </ul>	<ul> <li>CONS</li> <li>A simple, fair, and low tax system may still be subject to workarounds by companies that wish to avoid taxes</li> <li>An less complicated tax system may not take into account the unique needs of certain industries or groups</li> <li>May cause lower tax revenue</li> </ul>
<ul><li>STATE ACTION</li><li>Legislative action</li><li>Budget approval</li></ul>	<ul> <li>EXAMPLES</li> <li>Michigan: 2011 proposal to simplify corporate income tax, eliminating most exemptions and credits</li> <li>Ohio tax policy reforms have been successful</li> </ul>



# **OPTIONS: CAPITAL & CREDIT 6H. TAX POLICY: ACCELERATED DEPRECIATION**

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#### DESCRIPTION

Create a Missouri Accelerated Depreciation Schedule that would permit a corporation to subtract additional depreciation from its Missouri Taxable Income calculation, beyond the depreciation already allowed on its Federal return. Alternatively, Missouri may allow full expensing when assets are acquired.

#### RATIONALE

By allowing accelerated depreciation, or even full depreciation of an asset in the first year it is acquired by a business, companies receive a tax deduction sooner. This incentivizes companies to acquire more productive assets in early stages of business, and alleviates some of the burden of starting or growing a business. Missouri already uses the federal accelerated depreciation schedule.

<ul> <li>PROS</li> <li>Full expensing is recommended by The Tax Foundation as a step that would make the tax code more neutral between saving and investment</li> <li>Lowers the effective cost of investing in productive assets</li> </ul>	<ul> <li>CONS</li> <li>No clear immediate or direct benefit to Missouri</li> <li>Complicates corporate income tax administration for future years; requires a separate depreciation calculation</li> </ul>
<ul><li>STATE ACTION</li><li>Legislative action</li><li>Budget approval</li></ul>	<ul> <li>EXAMPLES</li> <li>Federal Modified Accelerated Cost Recovery System</li> <li>Most states, like Missouri, follow the federal government's depreciation schedule</li> </ul>





# **OPTIONS: CAPITAL & CREDIT 6I. TAX POLICY: TRANSFERABLE NET OPERATING LOSSES**

#### DESCRIPTION

A corporation generates net operating losses ("NOLs") when its allowable tax deductions exceed its revenue. A corporation may use NOLs to offset tax liabilities that have accrued in other taxable years. This option would permit companies to transfer NOLs for Missouri tax purposes.

#### RATIONALE

Startup companies often accumulate NOLs during their first years of operation. Prior to becoming profitable, NOLs provide little benefit to the proprietors of the startup. The purchase of NOLs by other profitable entities could decrease compliance costs and allow for greater fairness in the tax system. Such a plan would benefit startups by injecting additional, non-equity capital into these businesses in exchange for their net operating losses.

PROS	CONS
<ul> <li>Enables both the buyer and the seller of the NOL to be better off after the transfer of the NOL</li> </ul>	<ul> <li>The person who benefits from the NOL is not the same person who endured the economic detriment</li> </ul>
<ul> <li>Injects non-equity capital into start-up businesses</li> <li>Lowers compliance costs for preserving NOLs</li> </ul>	<ul> <li>Encourages transactions that have no economic purpose, other than tax avoidance</li> </ul>
	<ul> <li>Decreases state revenues</li> </ul>
STATE ACTION	EXAMPLES
<ul> <li>Legislative action</li> <li>Budget approval</li> </ul>	<ul> <li>Florida Spaceflight Business NOL Transfers (Florida Space Business Incentives Act)</li> </ul>



### **OPTIONS: CAPITAL & CREDIT** 7. DEVELOP MICRO-FINANCE PROGRAMS TO SUPPORT UNDERSERVED URBAN AND RURAL ENTREPRENEURS

#### DESCRIPTION

Develop micro-finance programs to support underserved urban and rural entrepreneurs who do not have access to or the credit rating to obtain traditional credit and financing to fund a startup.

#### RATIONALE

According to FDIC data (2015 survey), 8.5% of Missourians are "unbanked" and an additional 22.% are "underbanked" (i.e., they have a checking or savings account but use financial services outside of the banking system). This is higher than the national average. Underserved populations also tend not to have alternative "family and friends" networks that can be critical to jumpstarting a startup. Without access to credit and capital, therefore, such budding entrepreneurs often cannot begin. Also, underserved populations often do not have a network to help coach them through the business building process, nor do many "ecosystem" partners focus on the needs of this group. Some data from US microfinance suggests that such investments yield positive job creation.

<ul> <li>PROS</li> <li>Opportunity to unlock economic potential of underserved populations</li> <li>Reinforces theme that entrepreneurship and startups are important to all communities</li> <li>Potential to integrate with existing "ecosystem" programs</li> </ul>	<ul> <li>CONS</li> <li>Potential costs to launch new program</li> <li>Need for capable "grassroots" and local partners for implementation</li> <li>Need to accept potential for setbacks as program is developed and launched</li> </ul>
<ul><li>STATE ACTION</li><li>Legislative action</li><li>Budget approval</li></ul>	EXAMPLES <ul> <li>Grameen Bank (India)</li> </ul>



### OPTIONS: BRANDING 1. PICK 1-3 INDUSTRY SECTORS AND FOCUS ON BEING NATIONWIDE OR GLOBAL – NOT REGIONAL – LEADER

#### DESCRIPTION

Announce a bold, long-term commitment to become a national and/or global leader in its areas of strength.

#### RATIONALE

By concentrating its efforts on a small number of key sectors (such as Ag/Plant Tech, Human Biosciences, Logistics, Animal Health) where the state already has significant strategic assets, Missouri could establish its innovation brand and differentiate itself from peer states.

<ul> <li>PROS</li> <li>Leverages existing strengths and strategic assets</li> <li>Provides a framework for investment, talent attraction, and branding</li> <li>A large state investment, sustained over 10-20 years, signals commitment to industry and attracts companies for long-term</li> </ul>	<ul> <li>CONS</li> <li>Could cause Missouri to miss opportunities outside our areas of focus</li> <li>Lack of consensus regarding areas of strength</li> <li>Current fragmentation of state ecosystems may impede cooperation and collaboration to advance on common goal</li> </ul>
STATE ACTION         Executive action         Legislative action         Budget approval	SUCCESSFUL EXAMPLES <ul> <li>Danforth Plant Science Center</li> <li>SixThirty Fintech Accelerator</li> <li>BioSTL, KC Animal Health Corridor</li> </ul>



### **OPTIONS: BRANDING** 2. LAUNCH MARKETING INITIATIVE PROMOTING INNOVATION STORYLINES TO NATIONAL AUDIENCE

#### DESCRIPTION

Develop and fund a statewide marketing campaign designed to promote State image as an innovation-friendly locale for entrepreneurs and investors.

#### RATIONALE

Despite significant progress over the last 10-20 years, Missouri is not viewed as an innovation hub. We have some great stories to tell, but we have not yet had a unified effort to promote those stories in key markets and among key influencers.

<ul> <li>PROS</li> <li>Would address one of the key problems identified in roundtable meetings, surveys, interviews, and problemsolving sessions conducted by the Task Force</li> <li>Would provide the state with countervailing message to combat negative publicity</li> </ul>	<ul> <li>CONS</li> <li>Potentially expensive, with no guarantee of a return</li> <li>Difficult to get consensus between various regions, industries, institutions, and constituencies on what the message should be</li> </ul>
STATE ACTION <ul> <li>Executive action</li> <li>Legislative action</li> </ul>	SUCCESSFUL EXAMPLES <ul> <li>Startup New York</li> </ul>



### **OPTIONS: BRANDING** 3. MAKE BIG STATE INVESTMENT IN 1 SECTOR TO SIGNAL COMMITMENT

#### DESCRIPTION

Make a substantial investment in one key strategic sector (such as Plant/AgTech, Animal Health, Bioscience, Logistics)

#### RATIONALE

Missouri could "pick its target" by making a substantial investment in a single sector, thereby signaling to the rest of the country—and the world—that it is commitment to leadership in an area of strength.

<ul> <li>PROS</li> <li>Would concentrate limited resources for maximum leverage</li> <li>Would clearly delineate investment approach for the State going forward</li> </ul>	<ul> <li>CONS</li> <li>Could cause MO to miss opportunities outside our areas of focus</li> <li>Lack of consensus regarding areas of strength</li> <li>Unclear what form this investment would take</li> <li>"All eggs in one basket"</li> <li>Highly susceptible to cyclical downturns</li> </ul>
STATE ACTION	SUCCESSFUL EXAMPLES
<ul> <li>Executive action</li> </ul>	<ul> <li>Buffalo SolarCity</li> </ul>
<ul> <li>Legislative action</li> </ul>	<ul> <li>North Dakota Bakken slate oil field development</li> </ul>



### **OPTIONS: BRANDING** 4. SOLICIT INVOLVEMENT FROM VENTURE CAPITALISTS (+) AND INVESTORS FROM AROUND THE WORLD

#### DESCRIPTION

Make a dedicated effort to attract satellite offices of major VC firms around the world to Missouri.

#### RATIONALE

With two of the top emerging innovation cities in the US (St. Louis and Kansas City) and a central location, Missouri could become the "beachhead" for top VC's looking to increase deal flow from the Midwest.

<ul> <li>PROS</li> <li>Proximity to capital decision makers would be a significant help to Missouri entrepreneurs</li> <li>Being a "node" on the global VC network would improve access to talent and information</li> </ul>	<b>CONS</b> <ul> <li>No guarantee that global VC's would be willing to locate here</li> </ul>
STATE ACTION  Executive action	SUCCESSFUL EXAMPLES



### **OPTIONS: BRANDING** 5. HOLD LARGE INNOVATION EVENTS FOCUSED ON DRAWING GROUPS OF EXTERNAL STAKEHOLDERS

#### DESCRIPTION

Host a number of high-profile innovation-themed events designed to highlight its strengths and attract positive attention from key influencers.

#### RATIONALE

By holding a number of innovation-themed events, Missouri could attract key influencers to the state, where they would come into contact with our home-grown innovation leaders and entrepreneurs.

<ul> <li>PROS</li> <li>Would place Missouri "on the map" for key constituencies such as entrepreneurs, media, investors, researchers etc.</li> <li>Provides access to national and global resources for members of Missouri's innovation ecosystem</li> <li>Relatively low-cost</li> </ul>	<ul> <li>CONS</li> <li>Competitive space currently dominated by high-innovation coastal States</li> <li>Execution risk if events are not well-coordinated, well-attended, and well-covered</li> </ul>
STATE ACTION	SUCCESSFUL EXAMPLES
<ul> <li>Executive action</li> </ul>	<ul> <li>SXSW in Austin, TX</li> </ul>
<ul> <li>Private sector collaboration</li> </ul>	





### **OPTIONS: BRANDING** 6. SUPPORT REGIONAL INNOVATION BRANDING INITIATIVES

#### DESCRIPTION

Support and fund regional innovation branding initiatives (such as Accelerate STL)

#### RATIONALE

Rather than attempting to bring the various regions and industries in Missouri's innovation economy into a single marketing initiative, the State could instead provide support to private sector efforts already underway.

<ul> <li>PROS</li> <li>Some infrastructure already exists for such programs</li> <li>Would allow regions to promote their various strengths without having to conform to a statewide message</li> </ul>	<ul> <li>CONS</li> <li>Risk of reinforcing fragmentation of state branding and other innovation efforts</li> <li>Some regions would be at a significant advantage over others</li> <li>Rural areas would not benefit to the same degree as urban centers</li> </ul>
<ul><li>STATE ACTION</li><li>Executive action</li></ul>	<ul> <li>SUCCESSFUL EXAMPLES</li> <li>Accelerate STL, Possibility City Louisville, Detroit Comeback City</li> </ul>
<ul><li>Legislative action</li><li>Private sector collaboration</li></ul>	



# **APPENDIX**



# HOW INNOVATION WORKS KAUFFMAN INDEX DETAILS

The Kauffman Index of Entrepreneurship is a series of annual reports that measures U.S. entrepreneurship across national, state, and metro levels. Rather than focusing on inputs, the Kauffman Index focuses primarily on entrepreneurial outputs—the actual results of entrepreneurial activity—such as new companies, business density, and growth rates. The Kauffman Index series consists of three in-depth studies: Startup Activity, Main Street Entrepreneurship, and Growth Entrepreneurship.

#### **STARTUP ACTIVITY**

The Kauffman Index of Startup Activity is an early indicator of the beginnings of entrepreneurship in the United States, focusing on new business creation, market opportunity, and startup density. The 3 factors are:

1. Rate of New Entrepreneurs in the economy the percentage of adults becoming entrepreneurs in a given month.

Opportunity Share of New Entrepreneurs—the percentage of new entrepreneurs driven primarily by "opportunity" as opposed to "necessity."
 Startup Density—the rate at which businesses with employees are created in the economy.

#### MAIN STREET ENTREPRENEURSHIP

The Kauffman Index of Main Street Entrepreneurship measures business ownership

and density of established, local small businesses. The 3 factors are:

1. **Rate of Business Owners** in the economy, calculated as the percentage of adults owning businesses as their main jobs.

2. **Survival Rate** of firms, calculated as the percentage of firms that remain in operation throughout their first five years. For instance, the 2015 cohort consists of the percentage of firms that started five years ago (in 2010) and are still in business in 2015.

3. Established Small Business Density,

measured as the number of established small employer businesses normalized by the total number of firms.

#### GROWTH ENTREPRENEURSHIP

The Kauffman Index of Growth Entrepreneurship presents a novel gauge that attempts to bring together potential measures of business growth in the United States—across national, state, and metropolitan-area levels. The Index captures entrepreneurial growth along three indicators: **1. Rate of Startup Growth**—how much, on average,

startups in the United States grew in their first five years after founding as a cohort.

2. Share of Scaleups—the number of businesses starting small and growing to medium-sized or larger (employing fifty or more people) by their tenth year of operation as a percentage of all employer firms.
3. High-Growth Company Density—the prevalence of fast-growing, private companies in a region with at least 20 percent annualized growth over three years and \$2 million dollars in annual revenue.



Source: Praxis Strategy Group

#### WHERE WE ARE TODAY: MTC VEHICLE FOR STATE DIRECT EPRENEURSHIP & INNOVATION **IPPORT** OF FNI **FR**



"The Missouri Technology Corporation ("MTC") is a public-private partnership created [in 2005] by the Missouri General Assembly to **TECHNOLOGY** promote entrepreneurship and foster the growth of new and emerging high-tech companies. MTC focuses on 21st Century bioscience industries that build on Missouri's rich history in agriculture and technology." -- www.missouritechnology.com

#### The 3 main programs are:

- 1. Innovation Centers Commercializing research discoveries and innovations
- 2. MOBEC Enhancing entrepreneurship capacity through grants
- 3. IDEA Funds Investing in early stage high-growth companies

Program Summary	FY2016
MTC Total Funding	\$18,360,000
Innovation Center Funding	\$ 3,028,348
MOBEC Awards Granted	\$ 10,802,903
IDEA Investments Approved	\$ 7,175,000

#### MTC has 5 "Areas of Focus":

- Animal Health
- **Applied Engineering**
- **Biomedical Science** 3.
- Defense & Homeland Security 4.
- 5. Plant Science





### WHERE ARE WE TODAY: CAPITAL INVESTORS, CAPITAL AVAILABILITY AND DEALS IN KC ARE RISING







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Source: KCSourceLink

### WHERE ARE WE TODAY: CAPITAL BASED ON FUNDING PER CAPITA, MISSOURI RANKS MID TIER ON ALL STAGES OF STARTUP FUNDING

#### MISSOURI AND PEER STATES STARTUP FUNDS PER CAPITA RANKING BY STAGE (2016)

Top Tier (1- 15) Mid Tier (16-34) Bottom Tier (36-50)

Region		2016 Rank on Funding Per Capita							
	Total Startup Funds	Pre/Accelerator / Incubator	Angel	Seed	Early Stage VC	Later Stage VC	Grants		
Colorado	7	5	5	5	6	8	4		
Illinois	11	13	13	13	7	14	15		
lowa	39	35	35	35	29	38	38		
Kansas	45	8	8	8	38	43	39		
Minnesota	14	-41	41	41	15	12	24		
Missouri	26	23	23	23	32	20	25		
Tennessee	23	40	40	40	20	19	43		
Texas	18	19	19	19	13	21	14		

Source: 2017 PitchBook Data, U.S. Census Bureau, Accenture Analysis Copyright © 2017 Hawthorn Foundation. All rights reserved.

