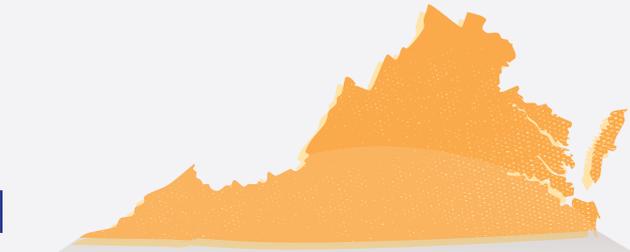




JEFFERSON
INNOVATION SUMMIT
— *for the* —

COMMONWEALTH



POLICY
PLAYBOOK

STARTUP ENGINES

As unemployment rates in some states and counties continue to exceed 10% in the wake of the Great Recession, finding new ways to create more sustainable job engines remain a top priority.

Even before the economic downturn, the U.S Small Business Administration had found that the most entrepreneurial regions in the United States showed 125 percent more employment growth, 58 percent more wage growth and 109 percent higher productivity than the least entrepreneurial regions of the country. Higher performing areas were also able to invest more for the long term, spending 54 percent more on R&D and producing 67 percent more patents per labor force participant.¹

The disparity between thriving startup communities and struggling ones highlights a major opportunity for public and private sector leaders to effect change. Whether it's planting new seeds for entrepreneurship in underperforming towns or accelerating innovation and venture creation in the already up-and-coming ones, much remains to be done. This Policy Playbook, which draws from ideas generated by delegates at the 2012 Jefferson Innovation Summit, seeks to catalyze entrepreneurial activity in the Commonwealth of Virginia and beyond.

The Playbook lays out **seven distinct opportunities** at the state and local level to create and accelerate startup engines where they're needed most.

DISCLAIMER

The policy ideas proposed in this Playbook are intended to promote discussion and debate and are not necessarily endorsed by the Office of the Governor of Virginia, or the University of Virginia and its affiliates.

When considering the secret sauce of a thriving startup community some might point to angel and venture capital arguing that businesses can't scale without money. Others focus on the need for a university to provide the talent that creates and runs new ventures. Still others suggest that the key is a favorable regulatory and tax environment for new business creation. And the list could go on. The premise for this Playbook is that, in fact, no one tool, institution, or policy can make or break a community.

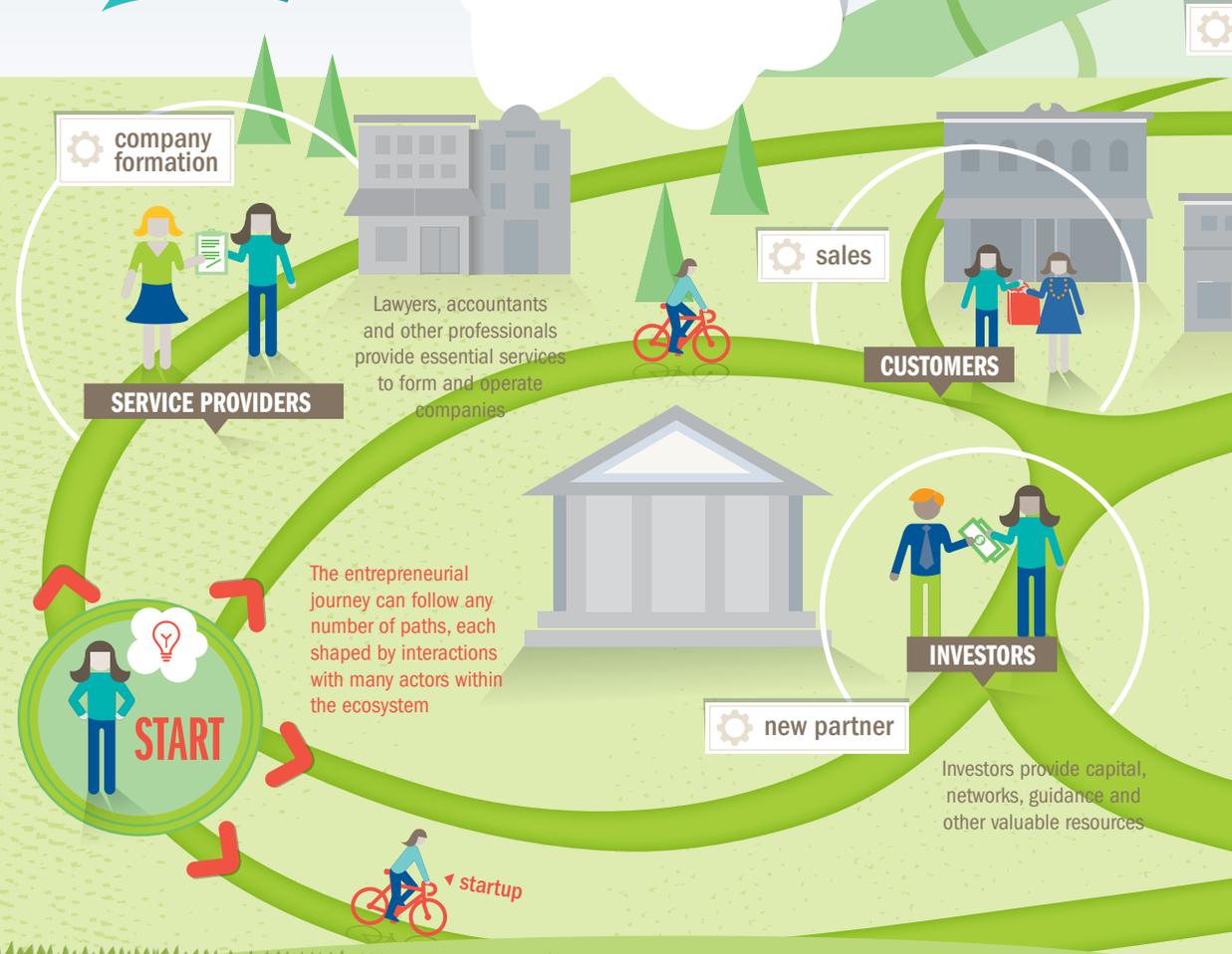
Taking a more holistic view, it is the full entrepreneurial ecosystem that matters most.

Capital is critical but no more so than education or culture, for example. It's when the confluence of the components in the graphic above is achieved that places like Silicon Valley or Route 128 flourish. While the key actors and levers for dynamic entrepreneurial communities are generally consistent, each has its own distinctive history and resources that will determine the best path to a self-sustaining ecosystem.

The ecosystem is composed of



The Entrepreneurial ECOSYSTEM



A SYSTEM OF LEVERS

Levers are the foundational components that actors can influence to drive an ecosystem's development



venture failure

Failure can spawn new ideas and startups

ENVIRONMENTAL FACTORS

Environmental factors such as proximity to cities and general quality of life can impact the ecosystem

small business

growing companies

CORPORATIONS

disruptive innovations

EMPLOYEES

These institutions fill the many gaps not adequately served by the government or private sector

NGOs & FOUNDATIONS

ACADEMIC INSTITUTIONS

new talent

Academia develops talent and research that generate new ideas and technologies

Government acts as policymaker and partner in building the physical, intellectual and regulatory infrastructure

GOVERNMENT

industrial company

NETWORKS

TAXES & REGULATIONS

CAPITAL

INFRASTRUCTURE

CULTURE



BACKGROUND

The Jefferson Innovation Summits convene public and private sector leaders to exchange ideas about how best to build communities of entrepreneurs and innovators.

INTENDED USE

This Policy Playbook does not present a step-by-step recipe for making the perfect entrepreneurial 'dish.' Instead, it **provides a toolbox from which to pick and choose ideas** that could inspire new policies for promoting entrepreneurs and innovators.

Conceived by the Batten Institute at the University of Virginia's Darden School of Business, each Summit adopts a unique format that emphasizes purposeful dialogue to generate action-oriented ideas and frameworks.

In recognition of Virginia's Year of the Entrepreneur in 2012, the Jefferson Innovation Summit for the Commonwealth brought together a diverse and influential group of sixty policymakers, entrepreneurs, executives, and thought leaders at the Darden School of Business to discuss how best to create and sustain a society of entrepreneurs and innovators in the Commonwealth.

Boasting a wealth of leading universities and a top spot in the nation among the best states for doing business, Virginia already has a strong foundation. Nevertheless, the Summit delegates explored the many under-leveraged opportunities within the state to identify strategies for building more dynamic and robust entrepreneurial ecosystems. The policy ideas in the pages that follow draw from the many bold proposals that emerged from the discussions in Charlottesville on September 7, 2012.

PLAYBOOK

ACTION IDEAS

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GOVERNOR'S SCHOOL FOR ENTREPRENEURSHIP

PROBLEM: While the Governor's School seeks to offer learning opportunities beyond those normally available to the gifted and talented, no program currently exists in entrepreneurship.

PLAYERS



Government



Academic Institutions



NGOs & Foundations



Entrepreneurs



Corporations



HOW IT WORKS

Add an entrepreneurship program to the Governor's School curriculum.

Recent decades have brought an explosion in activity in the field of entrepreneurship education. The number of US colleges and universities offering courses related to entrepreneurship has grown from just a few in the 1970s to over 1,600 today.² This push for education and training in entrepreneurship has begun to trickle down to secondary and primary education as well; at least nine states, including Virginia, have enacted legislation to support such programs for K-12 students. Early exposure to entrepreneurial thinking and startup role models can be critical for inspiring future generations of entrepreneurs and innovators. By tapping into Virginia's vast resources of educators, mentors, and technology, the Governor's School could add entrepreneurship to its repertoire of courses and further deepen the potential for its startup communities.



GOVERNMENT



LEADERS

Pennsylvania’s School for Global Entrepreneurship (PSGE)³

PSGE was launched in 2001 as a summer program within the state’s Governor’s School that brought together local and international students to get hands-on exposure to entrepreneurship. Following state funding cuts Lehigh University took over the program in 2009. The class of 2013 will reach 76 students.

South Carolina Governor’s School⁴

In collaboration with Google South Carolina Governor’s School started the Innovation, Technology and Entrepreneurship Among Middle Schoolers (iTEAMS) program, which exposes young students to topics in computer science, app development, and cyber security.

Kentucky’s Governor’s School for Entrepreneurs (GSE)⁵

In 2013 Kentucky will launch its Governor’s School for Entrepreneurs. The summer curriculum gives high school students practical experience in building a venture starting from the initial idea.



DATA POINTS

NFTE outcomes⁶

Through intensive camps, semester and year-long programs, pitch competitions and innovation challenges, the Network for Teaching Entrepreneurship (NFTE) has developed an array of tools to expose young people to entrepreneurship. Research on participant outcomes from their operations in DC and New York City shows that:

- **Over 80% of graduates** want to start their own business
- **Graduates are four times more likely** to start a business

DEGREES IN REGULATORY SCIENCE

PROBLEM: While most agree that regulation is necessary for a well-functioning society, few people are adequately prepared to address how much and what kinds of policies should be implemented.

PLAYERS



Government



**Academic
Institutions**



**NGOs &
Foundations**



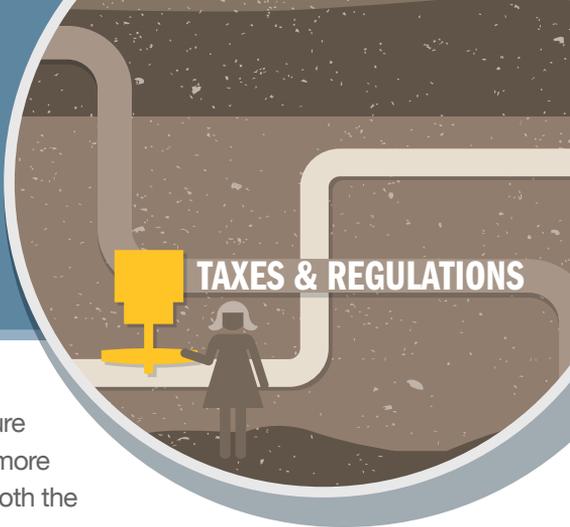
Corporations



HOW IT WORKS

Add advanced degree programs in regulatory science in order to refine the talent pool for designing and managing regulatory policy.

Overly strict or inappropriate regulatory policies have been shown to discourage new business formation and impede the growth of existing businesses.⁷ Furthermore, regulators sometimes struggle to keep up with new innovations as they emerge, which can result in policies that stifle the introduction of potentially disruptive new products and services to the market. At present few higher education institutions offer a degree in regulatory science, leaving this field of study disorganized and less impactful. By adding full degree programs at universities with dedicated research faculty, future regulators would be better equipped to develop smart policies and practices that best serve the needs of stakeholders. In addition, scientist entrepreneurs



involved in commercialization activities – with exposure to training or expertise in regulatory science – could more easily navigate regulatory challenges, helping to smooth the path from bench to bedside.



LEADERS

University of Southern California

USC's Regulatory Science program offers Doctorate and Master's degrees with course offerings that cover regulation of foods and medical products, quality assurance, clinical research, statistics, law, and business.

Northeastern University

Northeastern recently launched a Master's degree in biopharmaceutical regulatory science. Housed within the university's biotech program, the curriculum focuses primarily on regulatory practice in this industry.



CASE STUDY

From a 2008 study of 37 countries' regulatory regimes around the world, there is evidence that a more stringent regulatory environment on business entry increases risk aversion and discourages new venture creation even among entrepreneurs with strong existing networks and business skills.⁸



DATA POINTS

Top 10 Country

Rankings for Ease of Doing Business⁹

1. Singapore
2. Hong Kong
3. New Zealand
4. United States
5. Denmark
6. Norway
7. United Kingdom
8. South Korea
9. Iceland
10. Ireland

MORE MEETUPS & SPACES

PROBLEM: Inefficient or inadequate networks of actors within a community can stunt entrepreneurial activity.

PLAYERS



Entrepreneurs



Investors



Service Providers



Government



Academic Institutions



Corporations



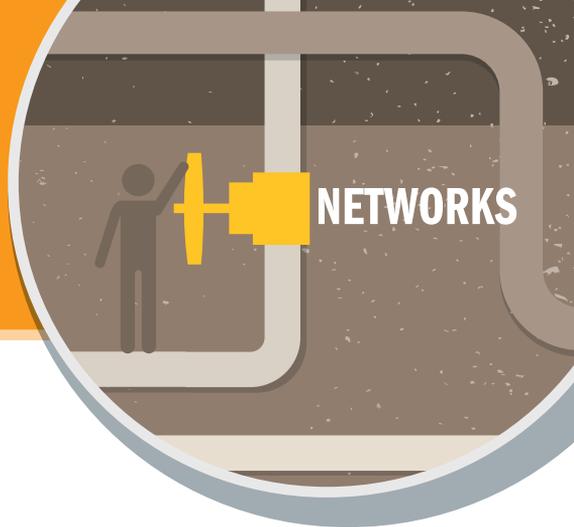
NGOs & Foundations



HOW IT WORKS

Develop more meetup activities and spaces for entrepreneurs to make new connections and build local networks.

From entrepreneur clubs to pitch nights, countless initiatives have been developed in communities across the US to build a culture of entrepreneurial networks. Community actors, including entrepreneurs, academic innovators, technology-transfer authorities, government leaders, corporate executives and service providers should act in concert to lead these efforts ensuring adequate buy-in and follow-on funding availability. Alongside these initiatives, spaces for spontaneous or programmed gatherings, such as coffee shops, incubators and community centers, can be made available. Universities and governments might also leverage their convening authority and facilities to support initiatives and to develop their own. With a critical mass of participants and available spaces in place, one event may seed another which spawns two more and the growth in activities and connectivity can take off.



NETWORKS



PLANTING SEEDS

Startup Weekend

Startup Weekends are 54-hour events that bring together experienced and aspiring entrepreneurs to try out their startup ideas. Beginning with idea pitches on Friday, attendees try to inspire others to join their team. Over Saturday and Sunday teams focus on customer development, validating their ideas, and building a minimal viable product. Finally, on Sunday evening teams demo their prototypes and get feedback from a panel of experts.

Business Incubation

Accelerators and incubators that provide mentoring, networks and seed funding to select new companies in exchange for a small equity stake have proven efficient at churning out high-growth startups. Y Combinator, a pioneer among business accelerators, has graduated 172 companies since its inception in 2005 and the current net worth of its graduates is estimated at over \$7 billion.¹⁰

Office Hours¹¹

Brad Feld, serial entrepreneur and author of *Startup Communities: Building an Entrepreneurial Ecosystem in Your City*, applied the notion of office hours to mentoring entrepreneurs in Boulder, Colorado. In order to make himself more available to startups in his community he sets aside one day a month to meet anyone who is interested in his advice and counseling for 15 minutes.



CASE STUDY

Research on tech entrepreneurs found that those with more contacts reported a higher number of business opportunities identified over a 12-month period. Furthermore, the presence of strong network ties during the early start-up phase appears to influence the persistence of nascent entrepreneurs to continue in their venture formation activities.¹²

BEST-PRACTICE RESOURCES FOR TECH TRANSFER OFFICES

PROBLEM: Significant differences in local resources and conditions yield a wide disparity in innovation and entrepreneurial outcomes from academic technology transfer offices (TTOs).

PLAYERS



Academic Institutions



Corporations



Government



Entrepreneurs



NGOs & Foundations



Investors



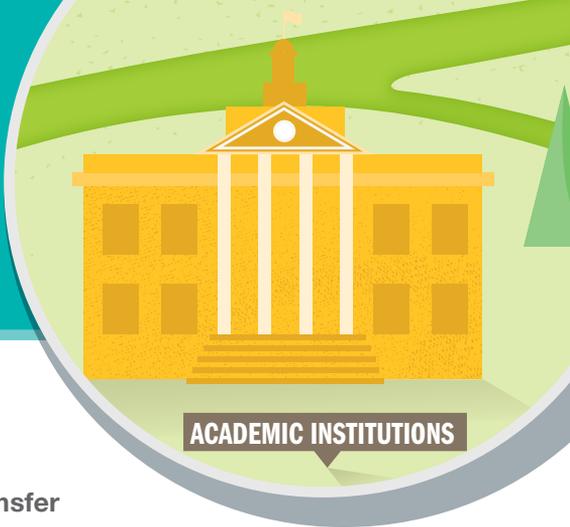
Service Providers



HOW IT WORKS

Support the creation or further evolution of a statewide organization to serve as the “go to” resource for developing, advising, and assessing best practices for TTOs.

The advisory group’s mission would be to develop and disseminate best practices that support universities’ innovation pipelines. It would advise elected officials and university leaders about gaps in resources and policies that are creating obstacles for effective innovation management. Members of such a statewide TTO advisory organization, which would include stakeholders from the business community, would also be tasked with promoting inter-institutional collaboration and improving the technology-transfer practices across the state. Ultimately such collaborative efforts could lead to policies, practices, and resource allocations supporting expedited and more sustainable proof-of-concept innovation development, intellectual property licensing, and startup activity from university technology.



LEADERS

Massachusetts Association of Technology Transfer Offices (MATTO)

MATTO includes 31 institutions across the state and provides its members with professional development training, resources on best practices, and forums to meet and share ideas, among other services.

Academic Licensing Community of Virginia (ALCOVe)

ALCOVe, the Commonwealth's existing collaboration among statewide TTOs, has been a leader in bringing together key stakeholders to facilitate the sharing of best practices. With additional resources and support, ALCOVe could establish a dedicated advisory group, incorporating leaders from business, non-profits and the government, to increase the organizations effectiveness and impact.

US Department of Energy Technology Transfer Working Group (TTWG)

TTWG is an organization of technology transfer professionals who work at the Department of Energy's (DOE) national laboratories that is chartered by the Secretary of DOE to: 1) coordinate DOE technology transfer activities, 2) exchange and implement "best practices", 3) disseminate information about technology transfer opportunities and procedures to the general public.



DATA POINTS

Top-Heavy Licensing Returns

Data from the Association of Technology Managers (AUTM) show that the top 20 out of 144 universities responding to the 2005 AUTM survey accounted for almost 80% of university licensing income over the three years prior.¹³

BUILDING THE RIGHT CULTURE

PROBLEM: Without the right attitudes towards creativity and failure, a community may struggle to get its startup engines going.

PLAYERS



Entrepreneurs



Corporations



Investors



Academic Institutions



Service Providers



NGOs & Foundations



Government



HOW IT WORKS

Celebrate entrepreneurship and innovation relentlessly to build a more supportive and dynamic environment for startups.

Entrepreneurs and academics alike believe culture is a key ingredient for a thriving ecosystem. Country and regional studies have drawn notable ties between individuals' positive inclination towards entrepreneurial pursuits and the economic dynamism of their communities.^{14,15} Yet no single policy or institution can build an entrepreneurial culture. Widespread and concerted activities by each of the key actors in an ecosystem over many years can provide the sparks that can accelerate a startup community. The adjacent section contains a selection of initiatives to consider when celebrating entrepreneurship and innovation.



CULTURE TOOLKIT

“Give Before You Get”¹⁶ Philosophy

Coined in Brad Feld’s *Startup Communities: Building an Entrepreneurial Ecosystem in Your City*, mentors, advisors, service providers and entrepreneurs alike should practice and promote a “give before you get” philosophy. Each actor should take a long-term view about investment in the community and plan to make ample contributions of time and other resources without any direct personal benefits at the outset.

Reward Success and Create an Environment Tolerant of “Good” Failure

Create role-models for others by publicly celebrating the successes of creative projects and startups. Ensure the environment has support mechanisms in place designed to underscore the fact that promising innovation initiatives that fail fast are tolerated – and that entrepreneurs faced with “good” failure are able to move on to their next entrepreneurial venture.

Virginia’s Year of the Entrepreneur

The Governor’s Office organized business plan competitions, entrepreneurial roundtable events, one-on-one meetings with small business owners, high impact Summits, and many other events in 2012 as part of its “Year of the Entrepreneur” campaign.



BRANDING CAMPAIGN

Develop and market a statewide campaign to create a unified vision and strategy in support of a startup culture.

Ideas proposed include slogans, such as:

Virginia is for Founders

Virginia is for Innovation Lovers

COMMERCIALIZATION REWARDS FOR UNIVERSITY FACULTY

PROBLEM: Due to the structure of promotion and tenure reviews for university faculty their innovation and entrepreneurial output can be stunted.

PLAYERS



**Academic
Institutions**



Government



HOW IT WORKS

Incorporate commercialization into the criteria for university faculty tenure and promotion decisions.

Reaching tenure offers faculty job security and significant freedom for creative intellectual pursuits. Prior to this point in their career, junior professors must maintain a laser focus on the specific criteria for advancement laid out by their university administration. With slight variations, the three areas that dominate promotion and tenure reviews at four-year colleges and universities are teaching, research and service. Notably missing from this list is technology commercialization. As a result, non-tenured faculty may be forced to postpone or completely discontinue such efforts. A promotion process that recognizes commercialization should incentivize collaboration with industry, starting a business, and generating research dollars and high-impact patent disclosures. Impact should be the key metric, not process alone or volume of work, just as it is for other forms of scholarship. Rewards for commercialization



efforts could be incorporated into the promotion and tenure review. These incentives would not remove the focus on scholarship, service, and publishing in academic journals, but would allow faculty members to pursue more research opportunities with commercial potential.



LEADERS

Revamped University Promotion and Tenure Policies

Making significant changes to a university's promotion and tenure criteria is no easy task as the existing frameworks have been embedded in the culture for decades. Yet in the last seven years an emerging group of US universities, including Stanford University, the University of Maryland, the University of Michigan and the University of Virginia's School of Medicine, have started to incorporate commercialization activities into their evaluation criteria for promotion and tenure. While the broad impact of these changes have yet to be fully evaluated, officials from some of the universities have reported an uptick in patenting activities and generally more positive perceptions towards commercialization pursuits among faculty.¹⁷

On the Move

Both the University of North Carolina¹⁸ and the Ohio Board of Regents¹⁹ issued reports that recommended changes to tenure and promotion guidelines to recognize entrepreneurial activity.



DATA POINTS

Licensing Royalties

According to research conducted by the Association of Technology Managers, licensing revenues for US universities exceeded \$1.8 billion in 2011 with Northwestern topping the list at \$192 million.²⁰ Limited research has been done to date to explore the relationship between tenure and promotion criteria with technology licensing and royalties.

MEASURING ENTREPRENEURIAL PROGRESS

PROBLEM: While most states provide data on a variety of economic indicators, few explicitly track and report metrics of entrepreneurial activity.

PLAYERS



Government



**Academic
Institutions**



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Foundations**



Corporations



Entrepreneurs



HOW IT WORKS

Implement a rigorous program to track and report entrepreneurial progress across the state leveraging existing data and resources where possible.

As more policies and initiatives emerge to support entrepreneurship, efforts to evaluate and monitor such programs must keep pace. Using regularly reported state and local data, an index of entrepreneurial activity could be an accessible, one-stop platform for analysis and evaluation. An annual report could also be released measuring the state's progress and analyzing the effectiveness of relevant policies and initiatives. Actively tracking and reporting data about entrepreneurial activity would also function to further embed these ideas in the language and culture of the community.



LEADERS

Business Dynamics Statistics from the US Census Bureau²¹

A particularly useful source for measuring entrepreneurial activity, this database covers the US economy and includes measures of firm openings and closings, as well as job creation and destruction by firm size, age, and industrial sector.

US Bureau of Labor Statistics (BLS)²²

The BLS offers a portal for entrepreneurship with basic annual data across the entire nation. While this source lacks depth, it offers a good starting point for efforts at the state-level.

The State New Economy Index

The Information Technology and Innovation Foundation (ITIF) has issued its State New Economy Index six times starting in 1999 with the most recent release in 2012. The index compares state economies utilizing 26 indicators across five key areas: knowledge jobs, globalization, economic dynamism, the digital economy, and innovation capacity.²³

The Index of Massachusetts Innovation Economy

Since 1997 the Massachusetts Technology Collaborative has released an in-depth annual report benchmarking the state's progress through data about business development, technology, capital, talent, research, and the economy.



DATA POINTS

Choosing the indicators

Key indicators to track at the state or local level could include: business formation, survival and death rates; share of high growth businesses in total; geographic and industry density of businesses; university technology commercialization; venture investment; and job creation (and loss).^{24,25}

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