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Innovation-Driven Entrepreneurial Ecosystems: Acceleration through Measurement and Policy

Professor Scott Stern

MIT and NBER

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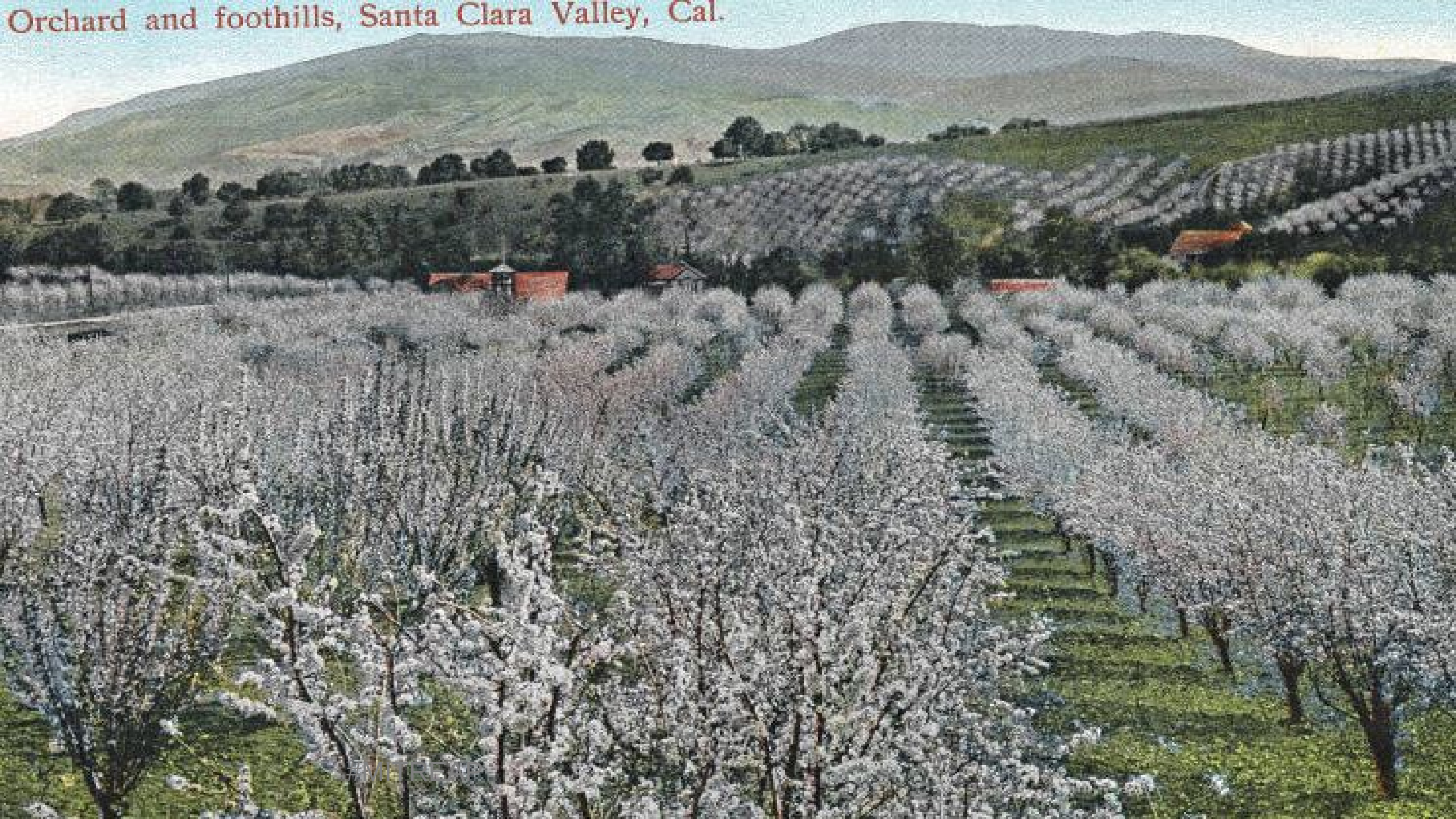
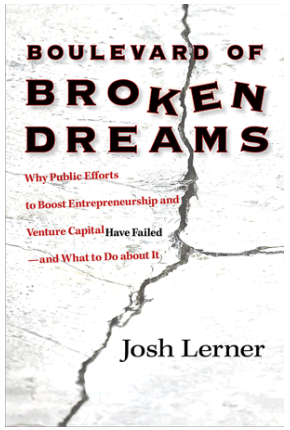
Orchard and foothills, Santa Clara Valley, Cal.



Far too often…

Well-intentioned approaches often end….in the Boulevard of Broken Dreams

Many regional efforts to accelerate through entrepreneurship fail to turn “ideas” into action, or fizzle out after an initial burst of energy and initiative



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How can we grow through accelerating innovation-driven entrepreneurial ecosystems?

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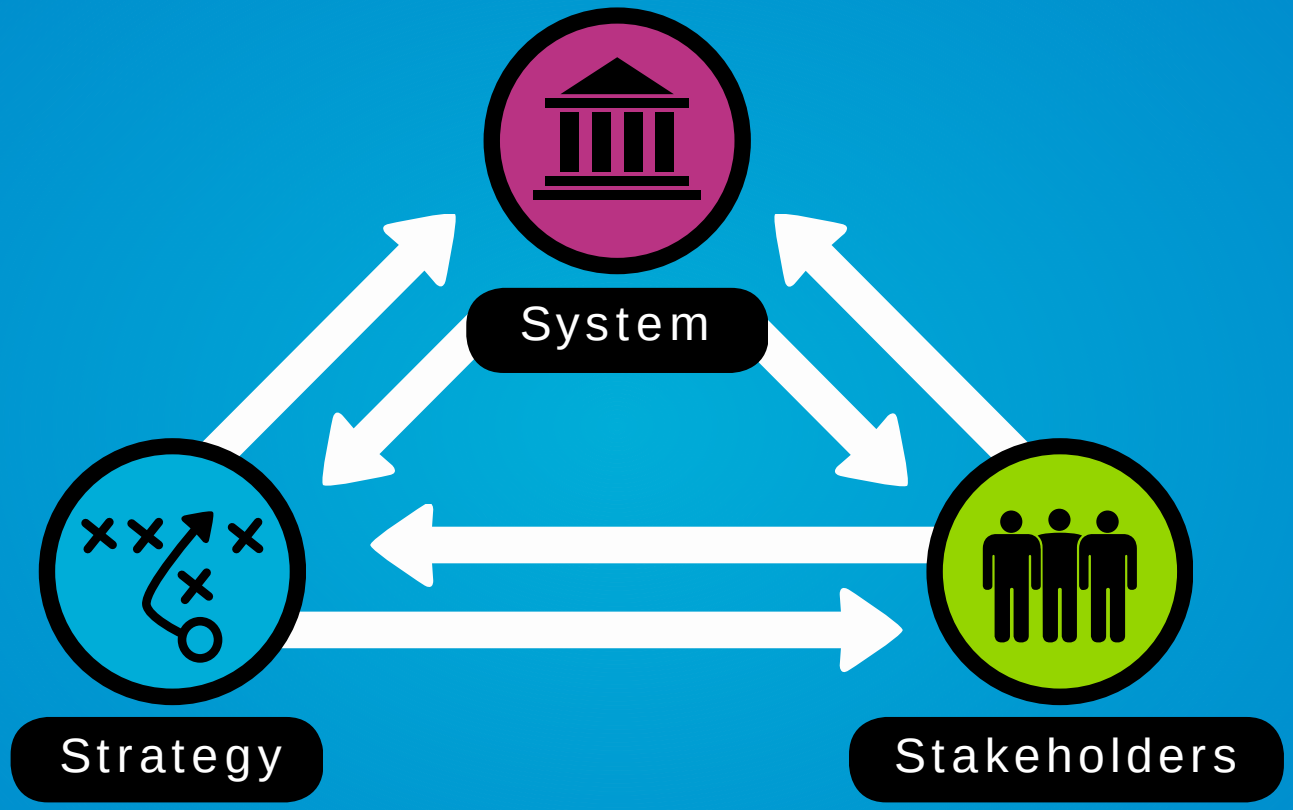
MIT Regional Entrepreneurship Acceleration Program



Engaging more than 30 regions all over the world…

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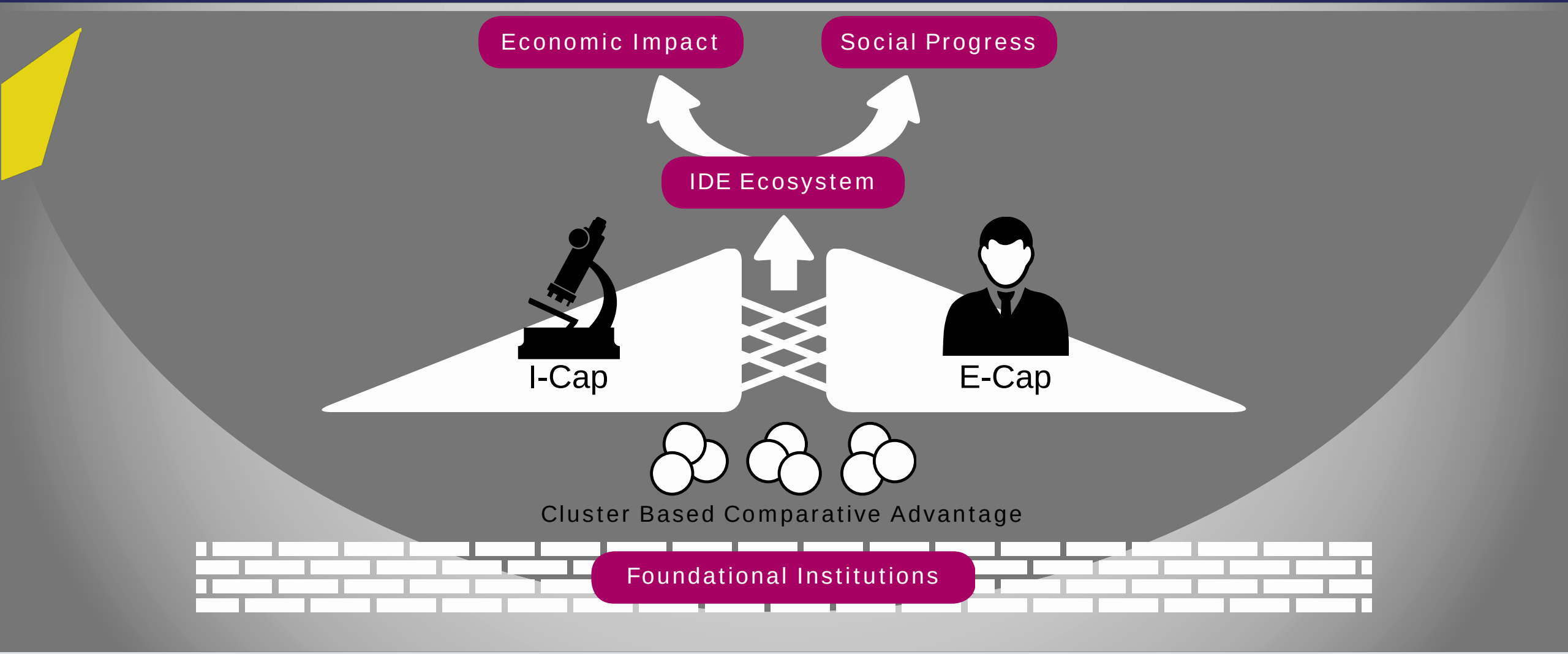
MIT IDE Ecosystem Framework



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MIT REAP Strategy

Alignment between regional comparative advantage, ecosystem capacity, and specific IDE ecosystem priorities

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To align stakeholders and policymakers, need for shared understanding…

Can we develop meaningful and actionable (and real-time) metrics for IDE ecosystem assessments?

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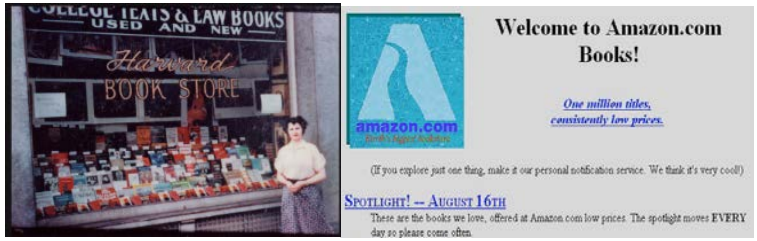
Measuring Entrepreneurial Quality: A Predictive Analytics Approach

Business Registrations



"Digital Signatures" of Growth Potential

Available at amazon

Mapping Growth Outcomes onto "Digital Signatures" to estimate quality for all firms

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How do "Digital Signatures" of Start-Ups Predict Growth? (NB: Prediction NOT Casusal)

	Change in the Probability of Growth
Has Short Name	248%
Firm Named after Founder	-70%
Corporation (Not Partnership or LLC)	405%
Trademark in First Year	501%
Patent and No Delaware Registration	3,534%
No Patent and Delaware Registration	4,470%
Both Patent and Delaware Reg.	19,640%
Sectoral Controls	Included
State Controls	Included

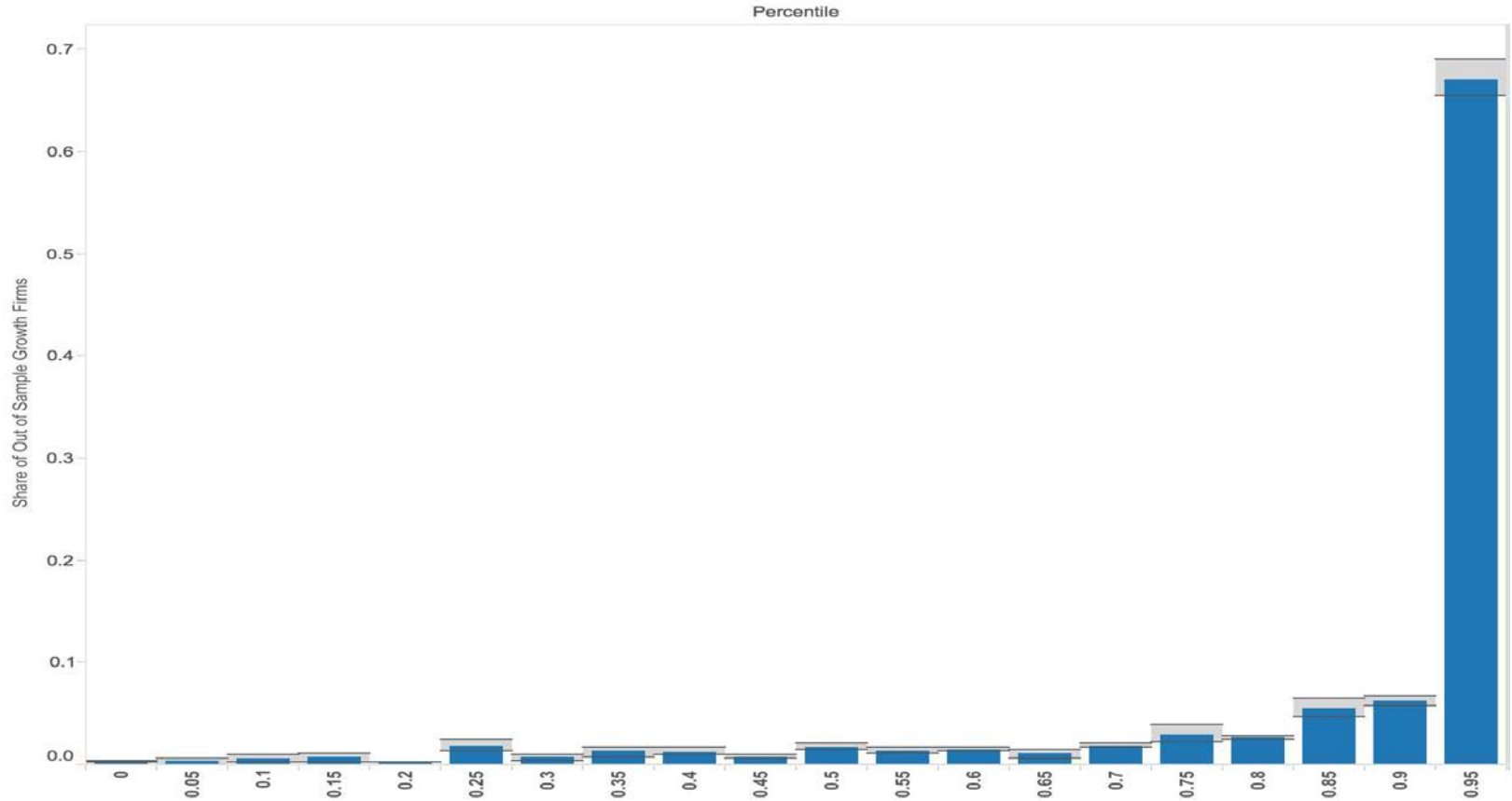
Guzman and Stern, 2016.

A New View of the Skew

10-Fold Test of Predictive Quality of Model*

Top 1% includes 51% of growth outcomes (range: [49%, 53%])
Top 5% includes 69% of growth outcomes (range: [65%, 72%])
Top 10% includes 75% of growth outcomes (range: [70%, 79%])

*10-Fold analysis of model separates the model into 10 random samples and then uses each of those sample as a test sample. We report the average value as well as minimum and maximum (range) of such.



Entrepreneurial Quality Statistics

EQI

Entrepreneurial Quality Index (EQI)

Average estimated quality within a group of start-ups

RECPI

Regional Entrepreneurship Cohort Potential Index (RECPI)

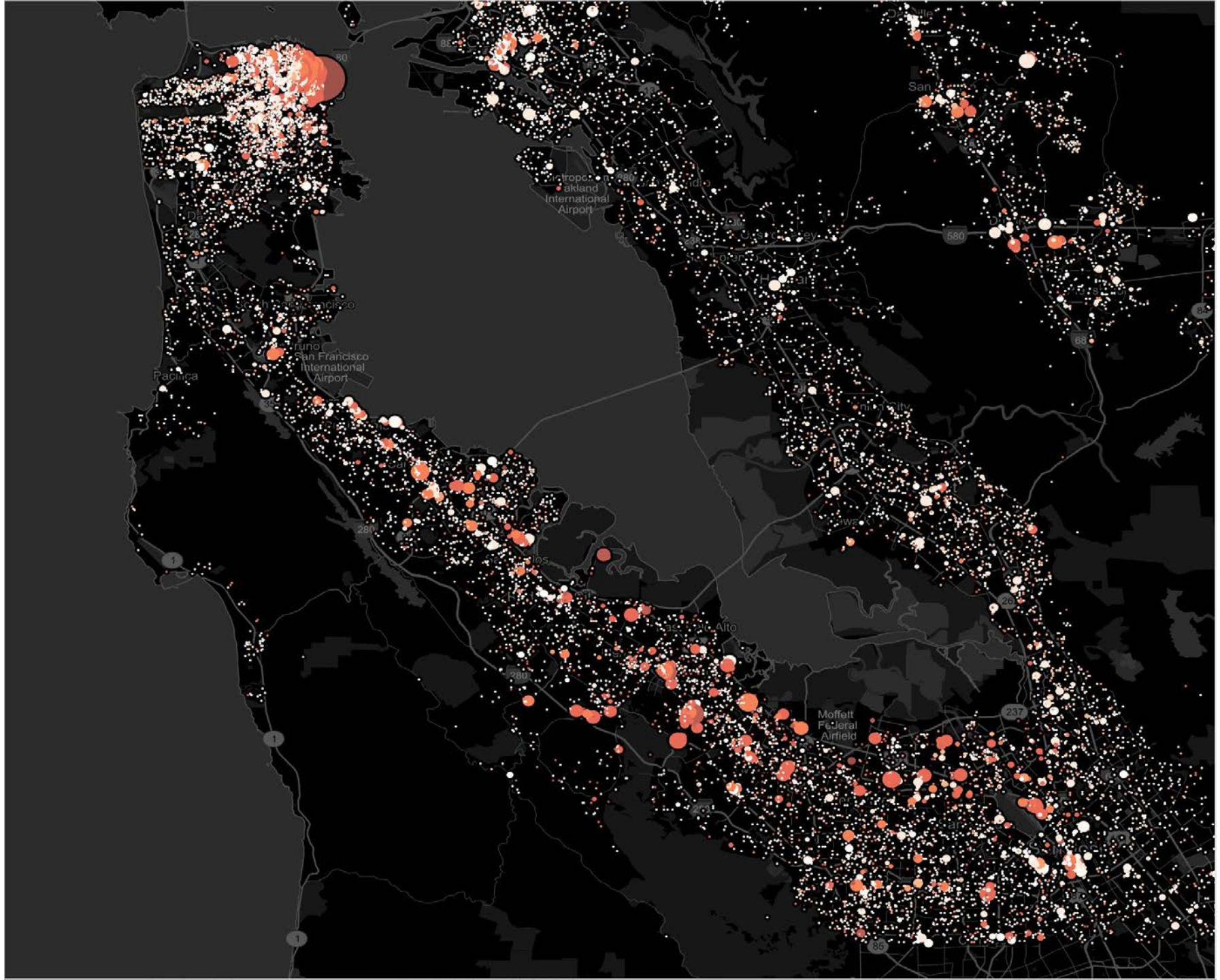
The number of startups within a particular region expected to later achieve a growth outcome

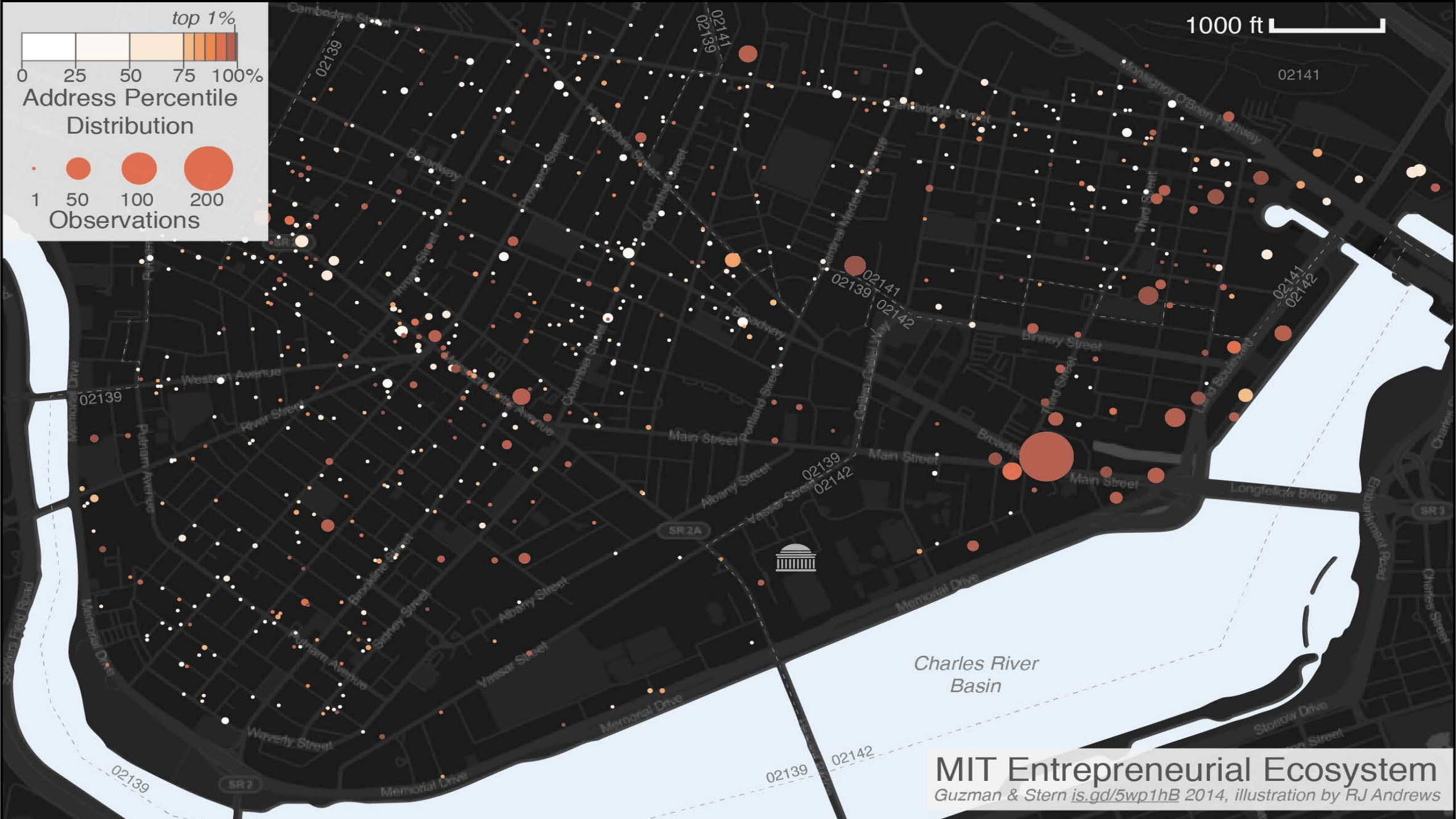
REAI

Regional Entrepreneurship Acceleration Index (REAI)

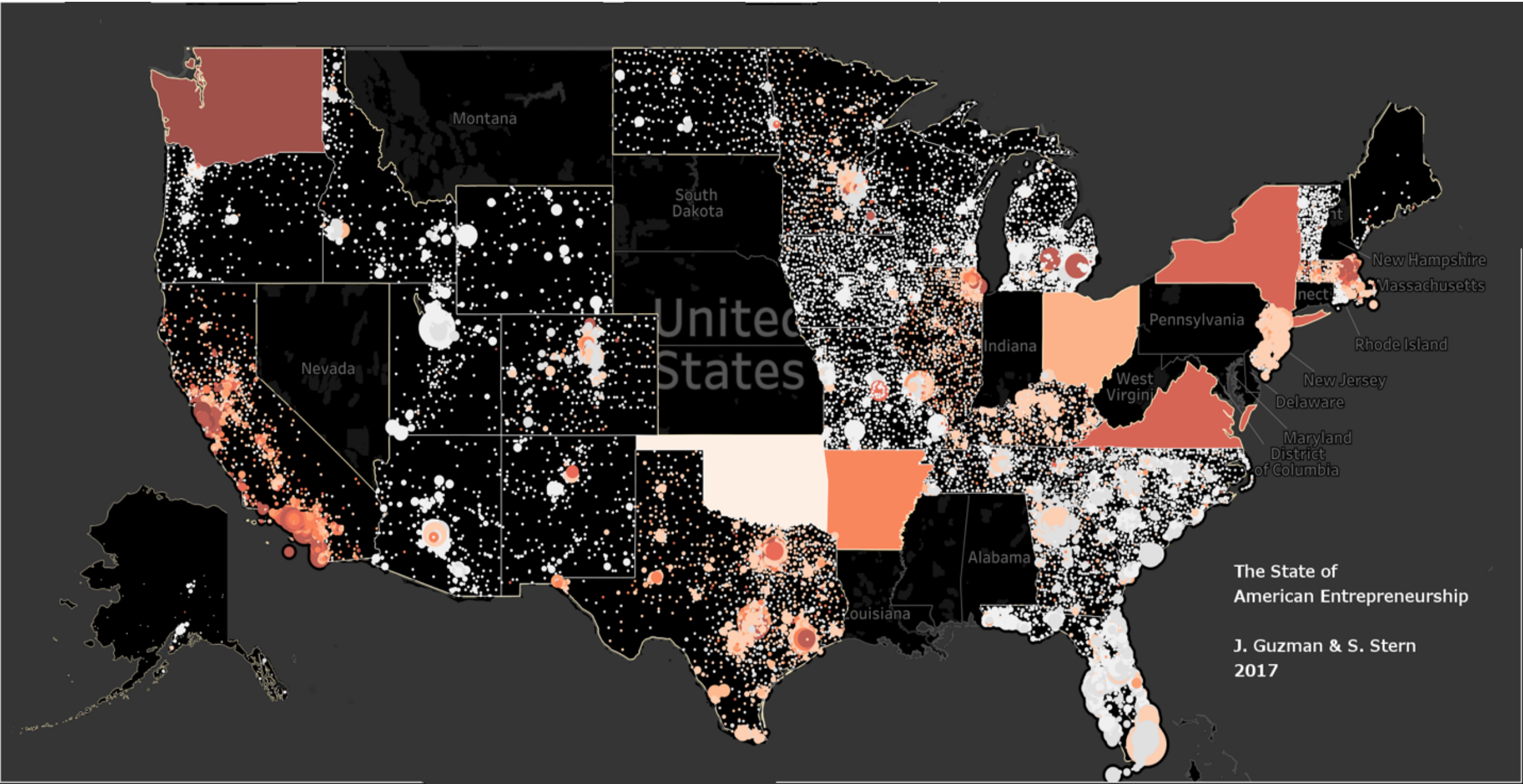
Estimates the ability of an ecosystem to convert entrepreneurial potential into realized growth events.

Address-Level Visualization of Silicon Valley



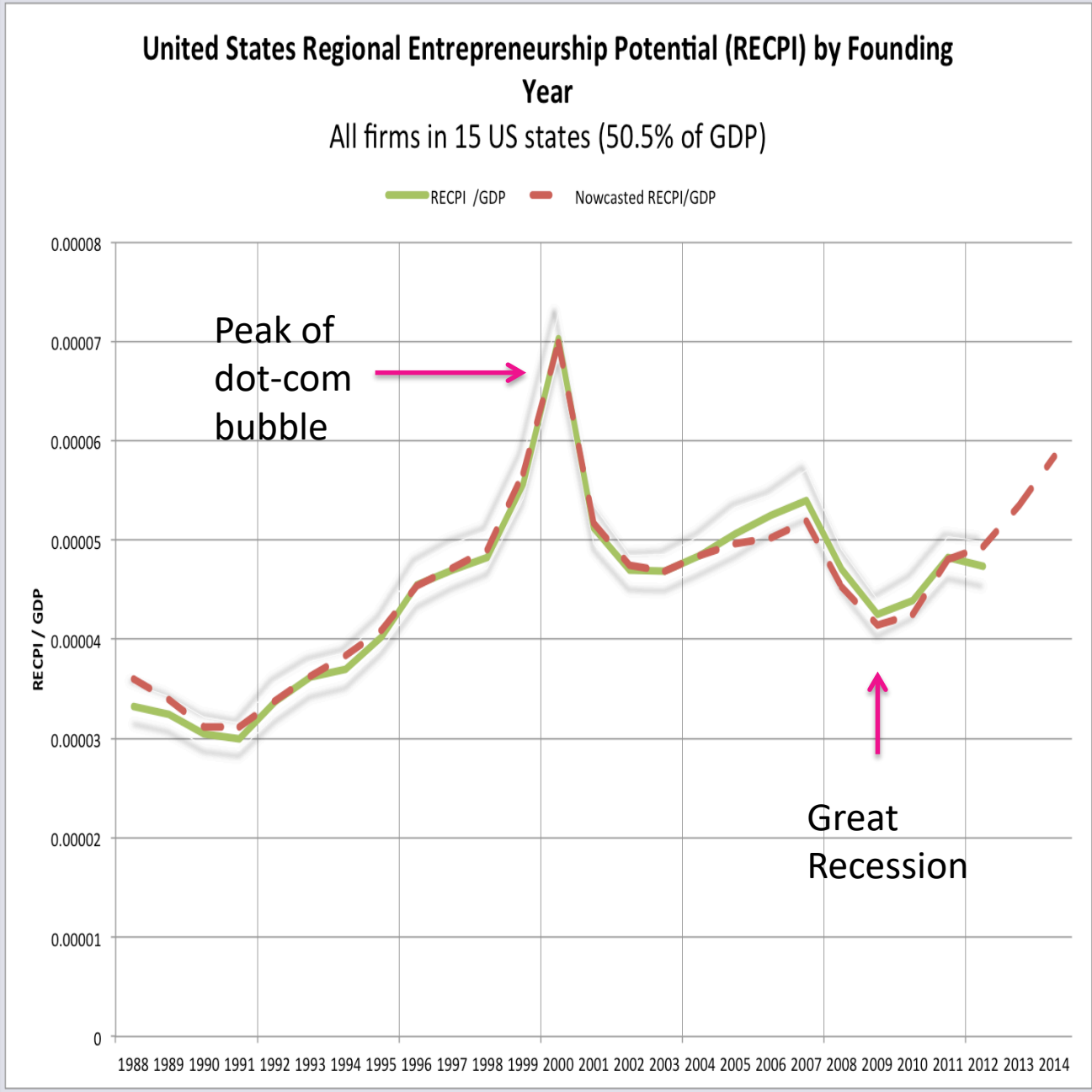

top 1%
0 25 50 75 100%
Address Percentile Distribution
1 50 100 200
Observations
1000 ft
MIT Entrepreneurial Ecosystem
Guzman & Stern is.gd/5wp1hB 2014, illustration by RJ Andrews
Charles River Basin
Memorial Drive
Main Street
Massachusetts Avenue
Vassar Street
Albany Street
Broadway
Western Avenue
River Street
Putnam Avenue
Longfellow Bridge
02139
02141
02142

The State of American Entrepreneurship, 2015



RECPI / GDP: The State of American Entrepreneurship Over Time

RECPI / GDP shows a sharp raise in potential during the late 1990 followed by a drop (but NOT a collapse) in 2001 and more moderate increase after the Great Recession. Nowcasted Index tracks closely and documents “boom” since 2010



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Guzman and Stern (2016)

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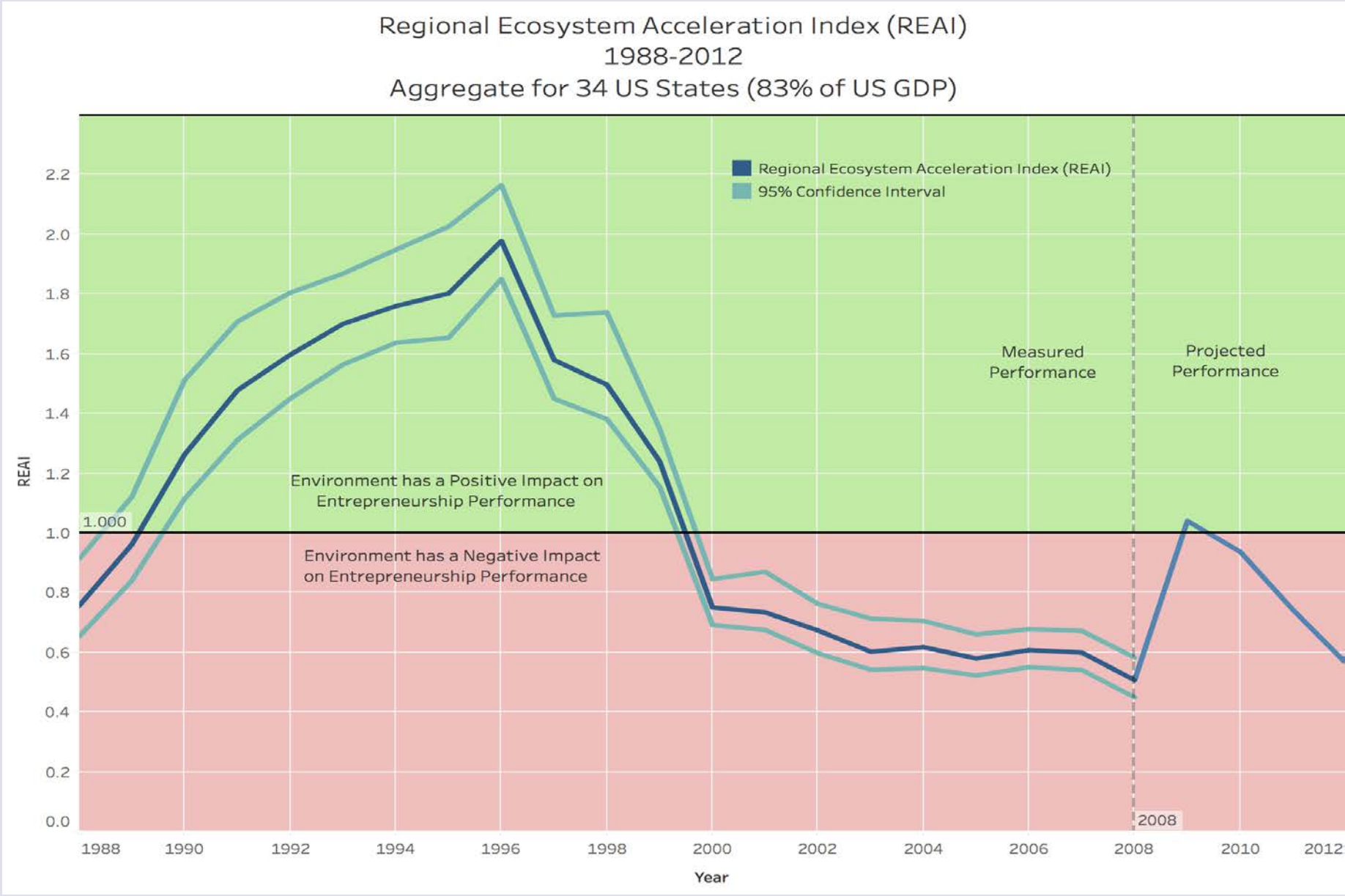
Decline in REAI indicates scaling failure for high-quality US start-ups over past 15 years…



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Guzman and Stern (2016)

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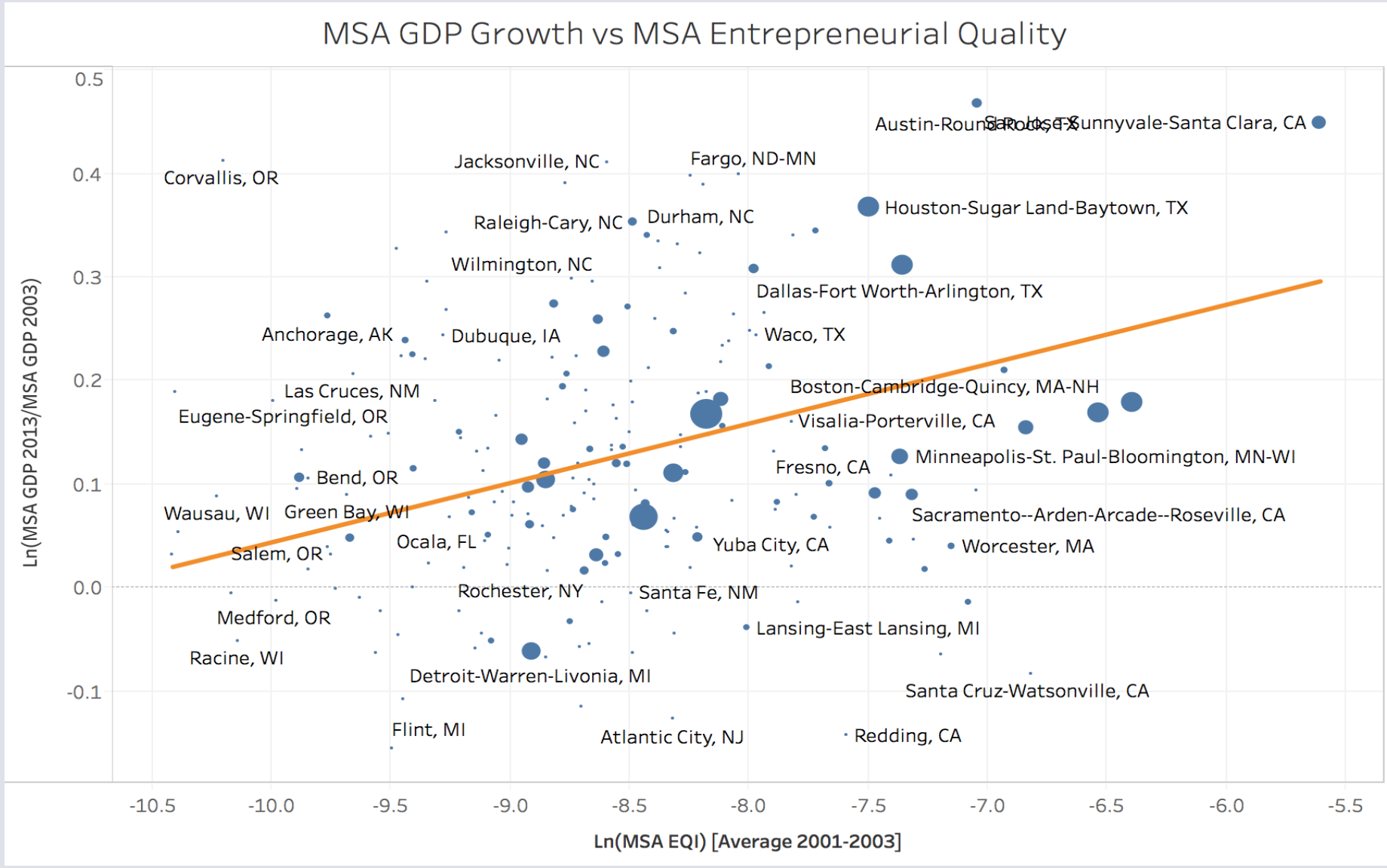
Entrepreneurial Quality Has a Strong Relationship to Economic Growth



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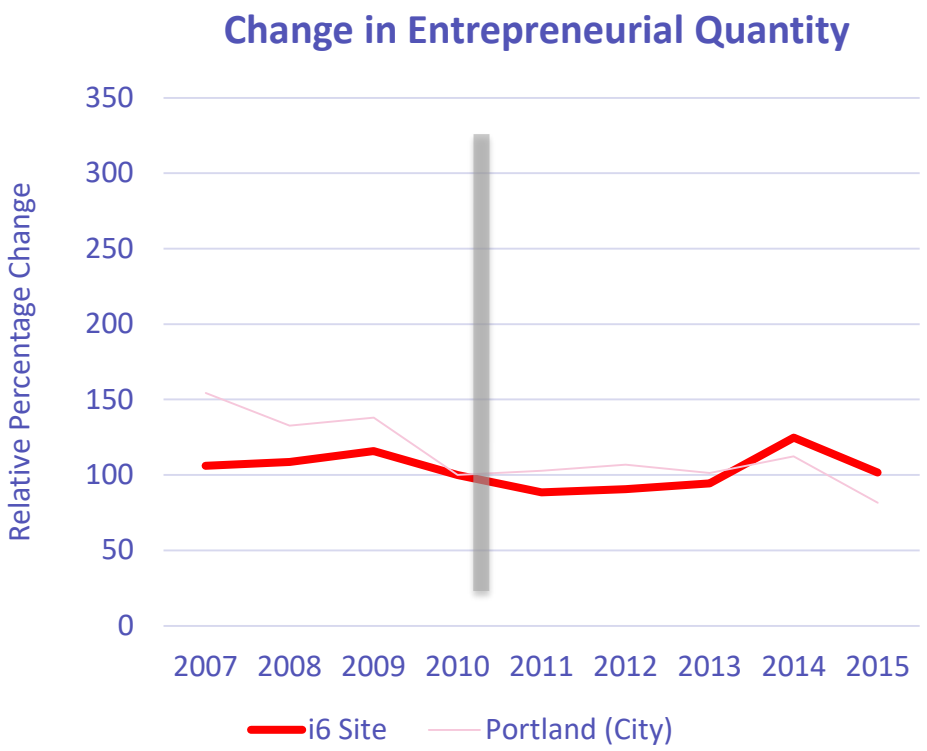
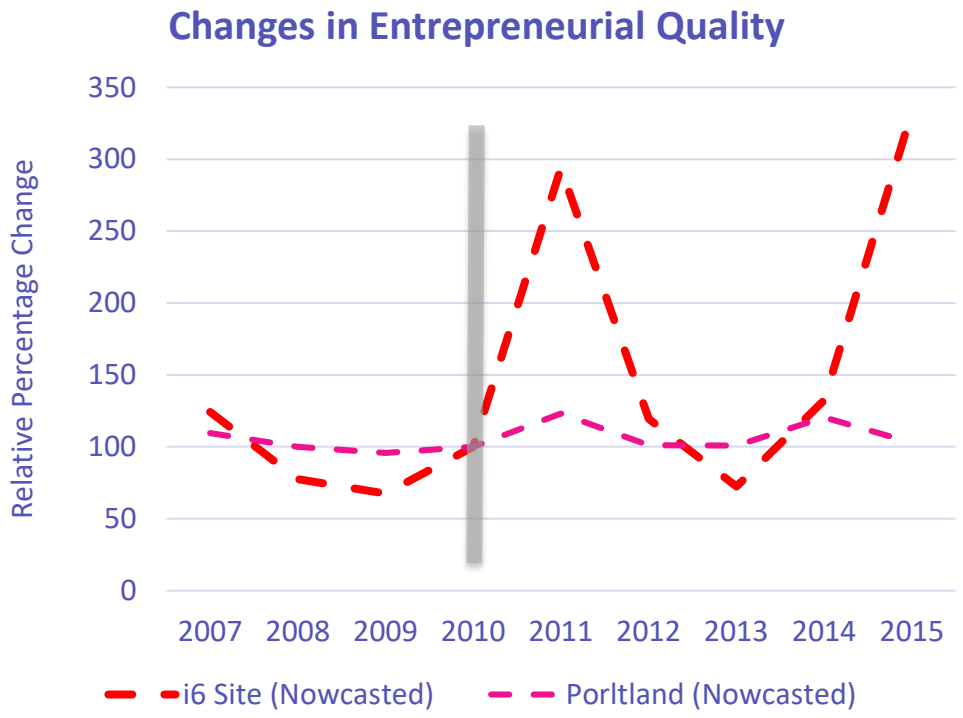
Potential for Real-Time Policy Evaluation: The US EDA i6 Program



No changes in <u>quantity</u>



But an upward (noisy) swing upward in <u>quality</u> around i6 site

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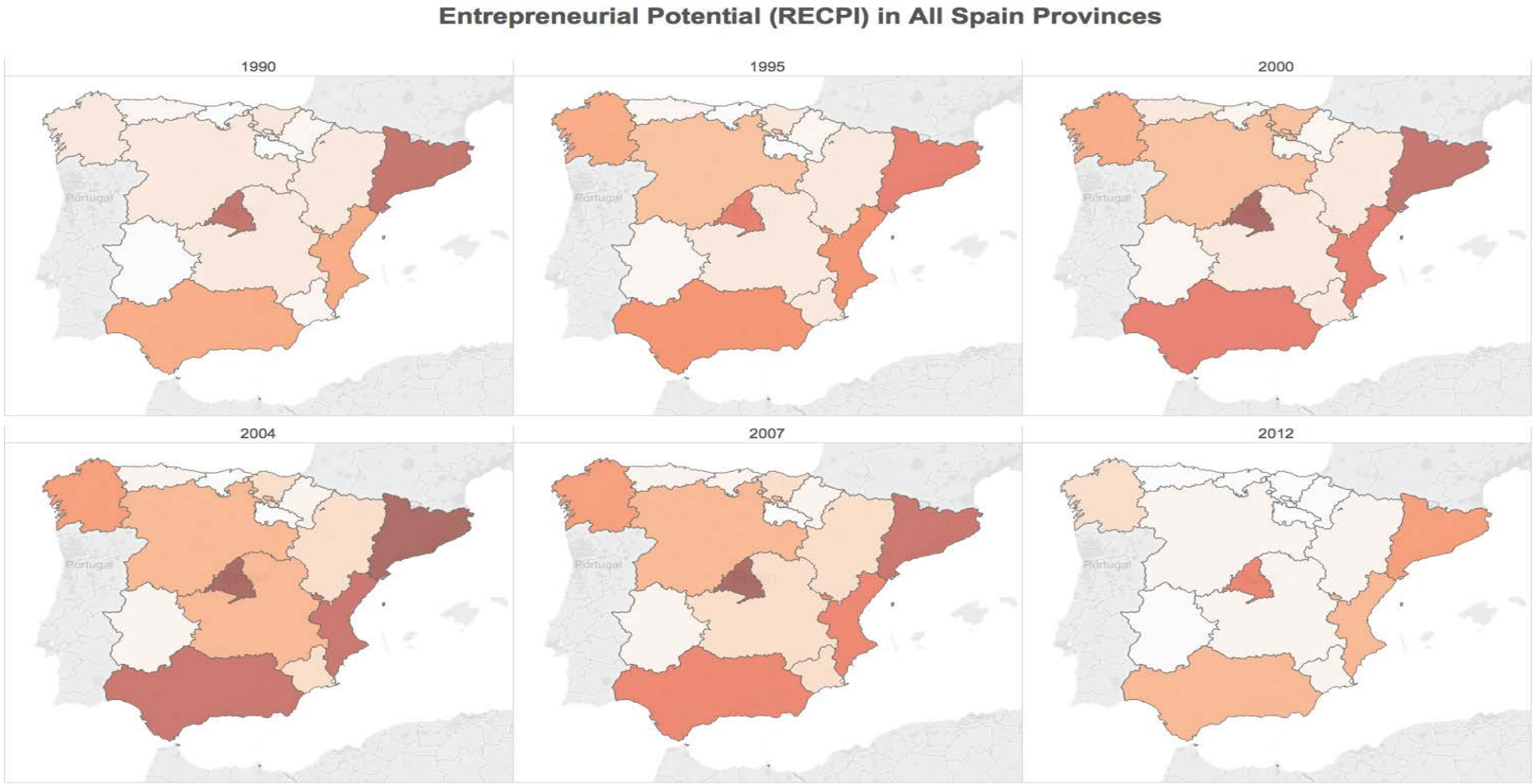
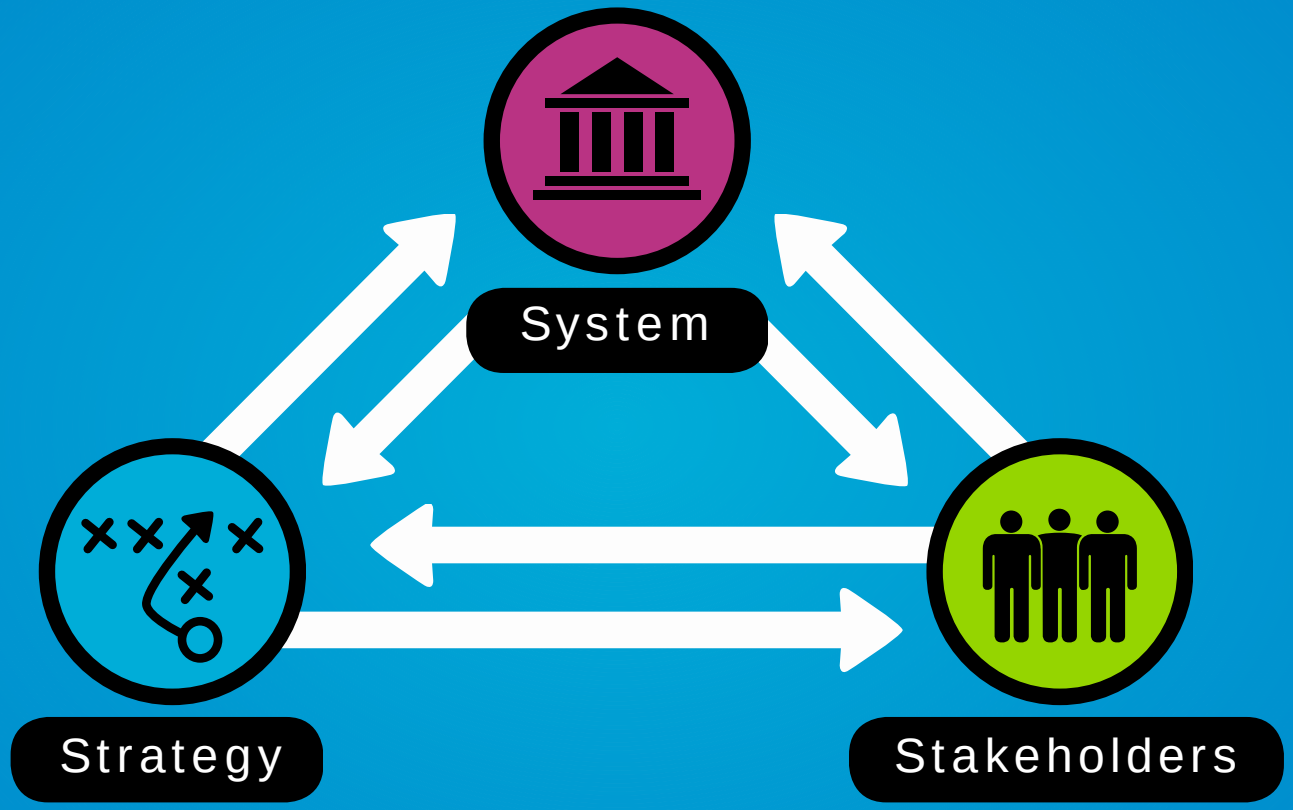
Potential for European Entrepreneurial Quality Statistics: The Case of Spain



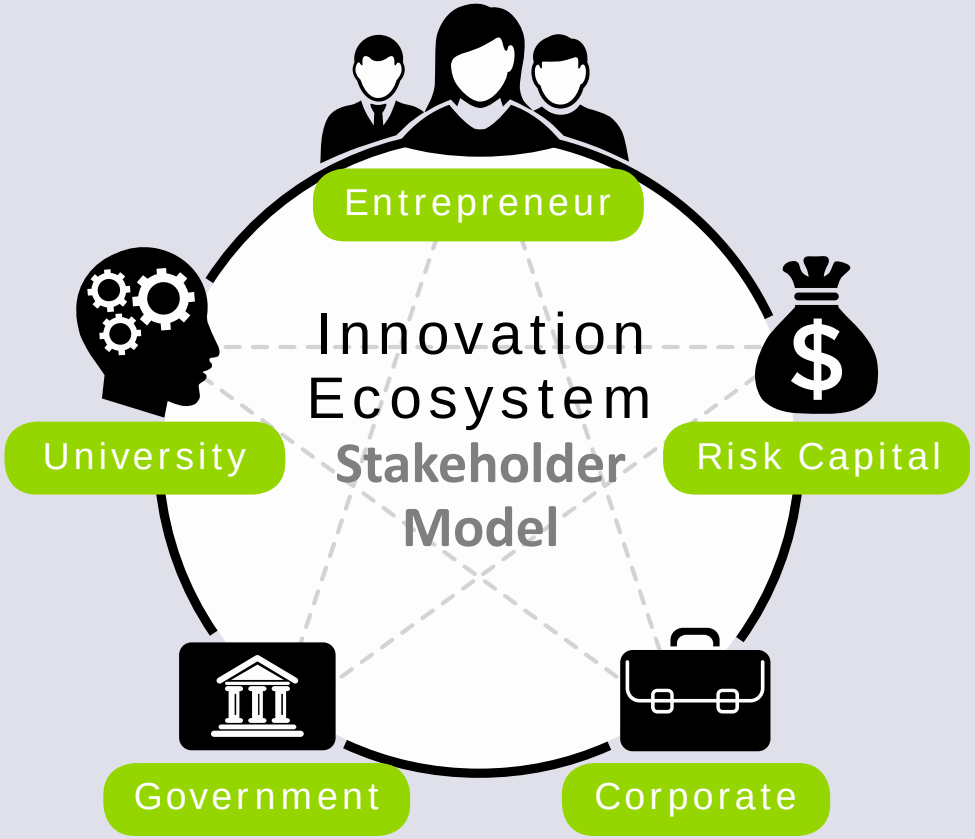
Measurement as a Driver of Policy and Acceleration



The Challenge of Empowering Stakeholders for Systems-Level Change

IDE Ecosystem-led growth is different from traditional economic development approaches

Collaboration across key stakeholders is crucial for collective impact and acceleration at the ecosystem level



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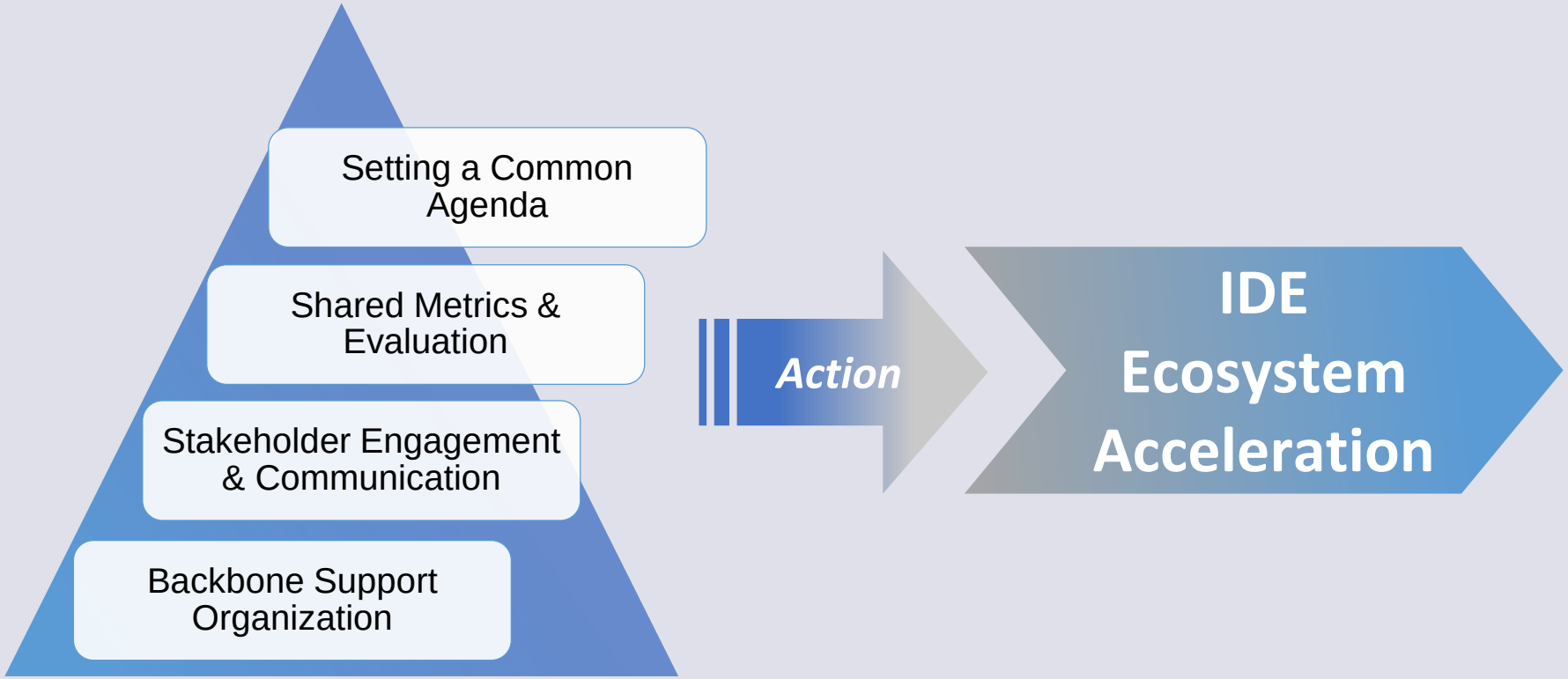
Shared Metrics and Evaluation Enable Stakeholder-Led Evidence-Based Entrepreneurial Acceleration…



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Team Scotland

PHOSPHATE HACKATHON

Team Morocco

GROWTH BUILDER

Team London

Team Singapore

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Can we leverage advances in measurement and data to foster innovation and entrepreneurship in the Euro area?

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MIT REAP

Regional Entrepreneurship Acceleration Program

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Thanks!!

sstern@mit.edu
www.scott-stern.com