

# 2017 Global Venture Lab: *Tech Transfer Perspective*

Mike Cohen

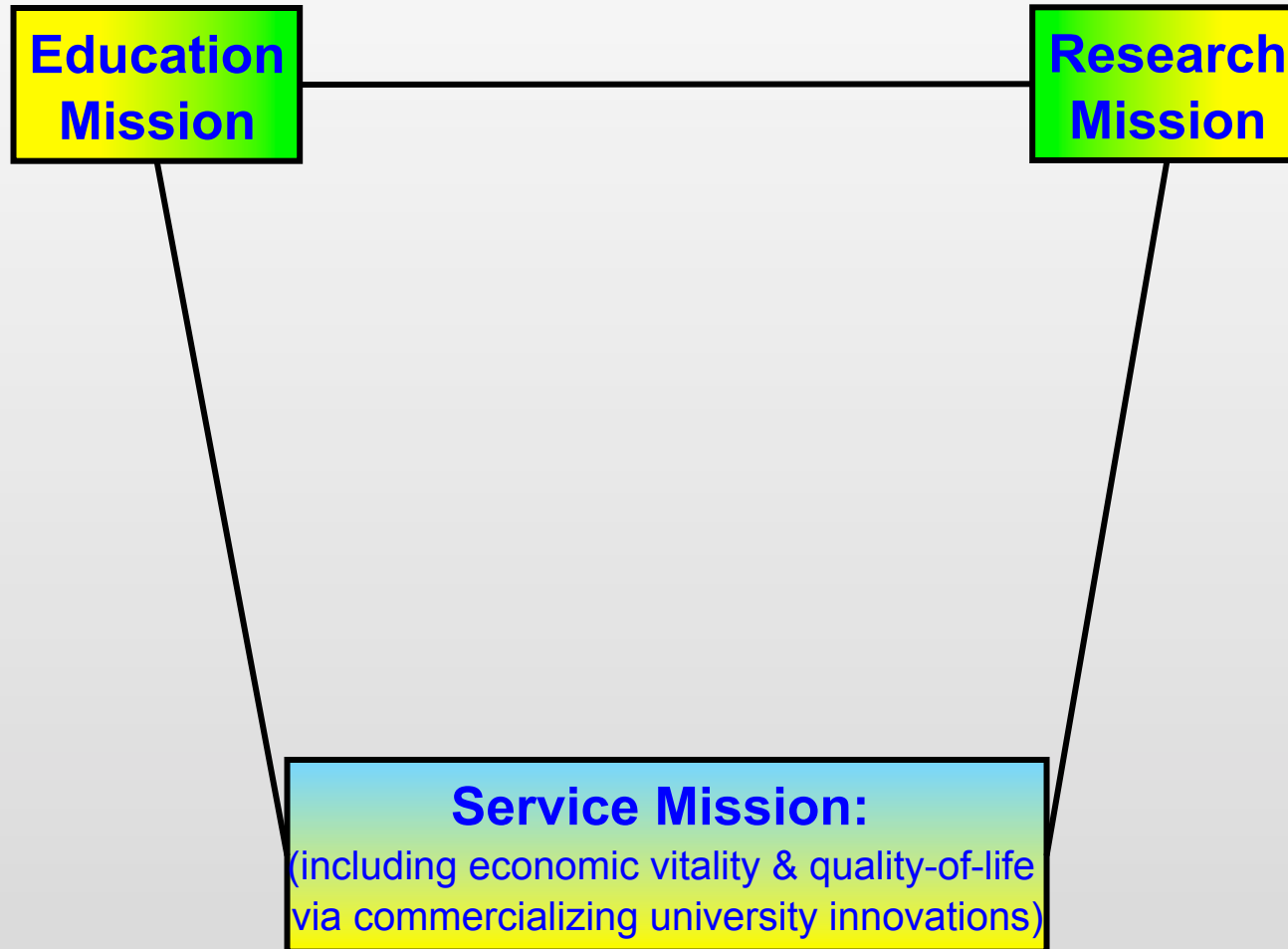
Director, Innovation Ecosystem Development  
UC Berkeley Office of Technology Licensing  
[mike.c@berkeley.edu](mailto:mike.c@berkeley.edu)

510-643-7201



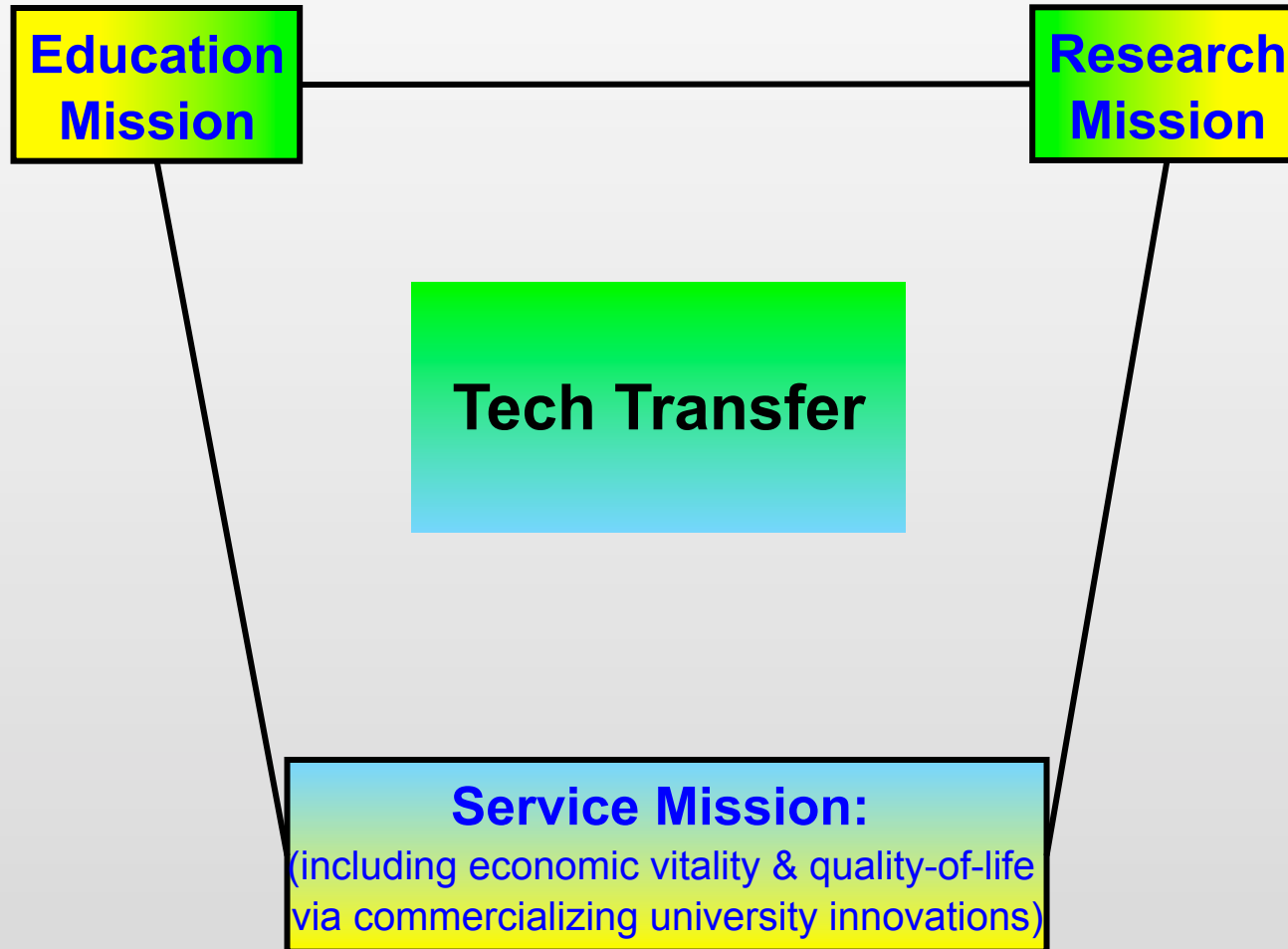
# University Mission

---



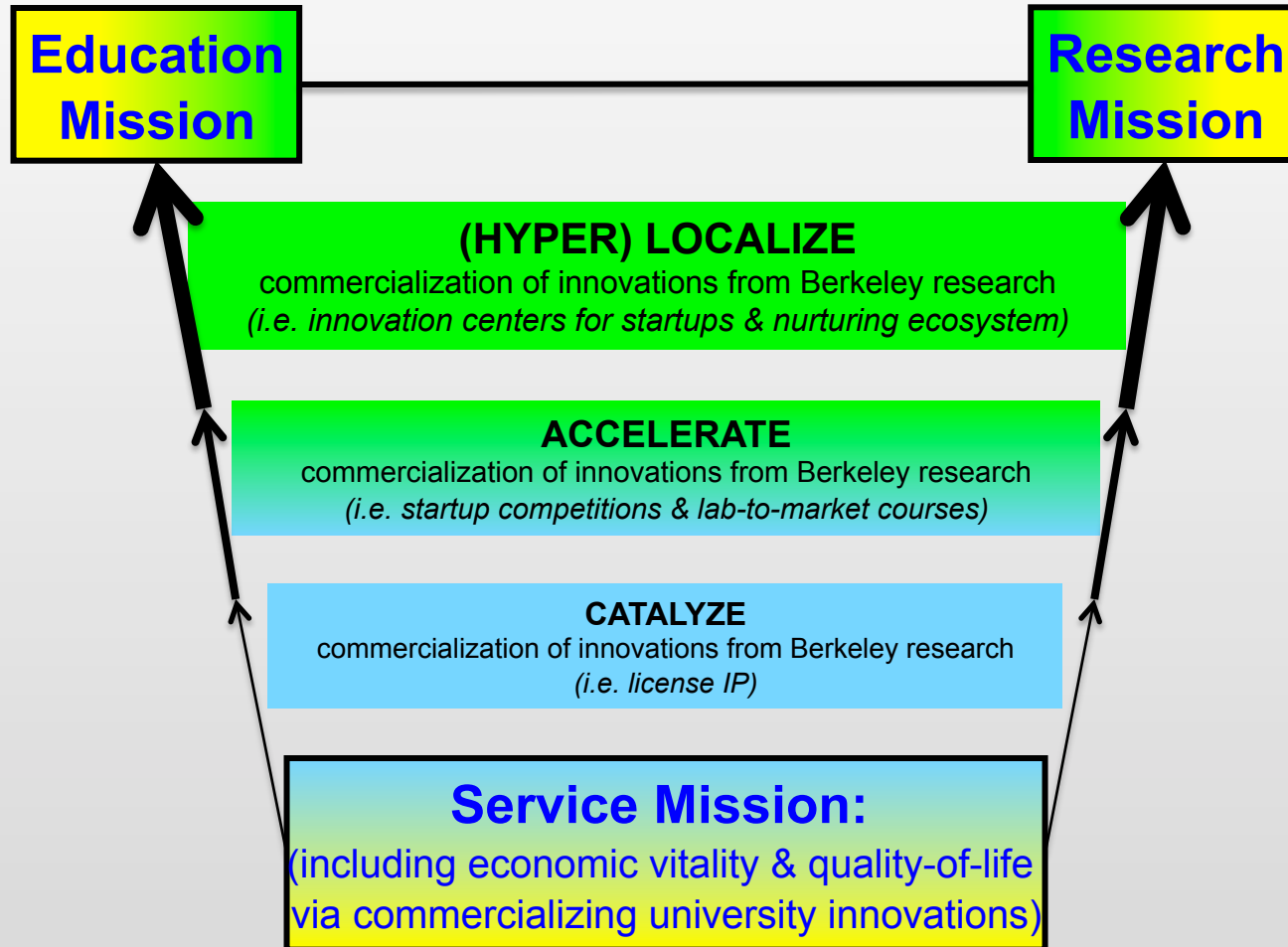
# University Mission: *Tech Transfer*

---



# University Mission: 3 Tiers of Tech Transfer

---



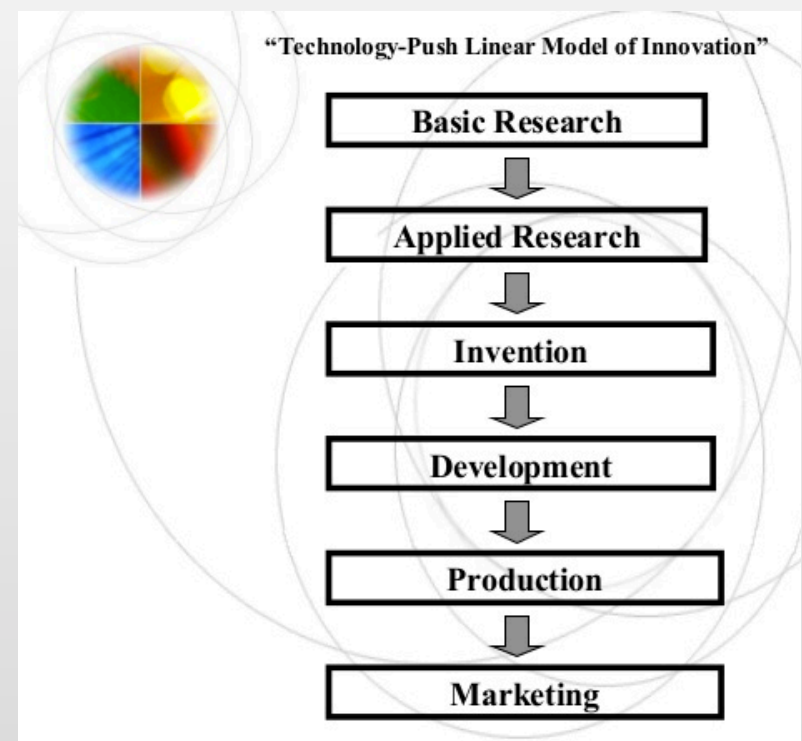
## Agenda: *10 Minute Talk + 5 Minute Q & A*

---

1. *Research*: How University Innovations Get Commercialized
2. *Observation*: Vortex Versus Waypoint Universities
3. *Prediction*: Strategic Value of Local Innovation Ecosystems

## Research: *How Do Univ Innovations Get Commercialized?*

- ❑ Conventional answer (in 2006) was linear  
(research=>invention=>license =>commercialize)
- ❑ What is the starting point?
- ❑ How are universities involved?
- ❑ How can universities increase startups?



Conventional Answer to  
How Technology Developed at Universities  
Gets Commercialized



## Research: *Studied >50 Cases of Tech Commercialization*

---

- ❑ Institutions: UC Berkeley & Berkeley Lab
- ❑ Sectors: Information technology, life sciences, clean tech
- ❑ Scenarios: Success & failures
- ❑ Cases Studies:  
[Amyris](#), Calimetrix, [CaliSolar](#), CellASIC, Chiron, [Ensignta Security \(FireEye\)](#), Excellin, Fluxion Biosystems, [GoodGuide](#), Harmonic Devices, [Hybrid Wisdom Labs](#), [Inktomi](#), Integrated Diag, IntelliOne, Kalinex, Lumiphore, Mercator Med, [MicroClimates](#), MicroFluidDX, OnWafer, ON Diagnostics, PhotoSwitch Bioscience, Redwood Bioscience, Safely, SiClocks, TheraFuse, Urban Scan, Verimetra Med, Wireless Industrial Tech, Dust Networks, Iris AO, SiTime, NanoGripTech, [Adura Tech](#), [Aurora Biofuels](#), CommandCAD, Euclid Media, MediFuel, NanoRay, nanoPrint, Analog Devices, [Nueprene](#) (XL Tech), [Google \(streetscape\)](#), Honeywell, Intel, Berkeley Bionics, Arkal Medical, Cisco, [ClimateCooler](#), [FuelFX](#), [Luminus Devices \(laser lift-off\)](#), Honeywell, Microchip Biotech, Renovis, Sand9, Silicon Basis, [Solexel](#), Vitesse, 3M

## Results: *The 4Ms of Univ Innovation Commercialization*

---

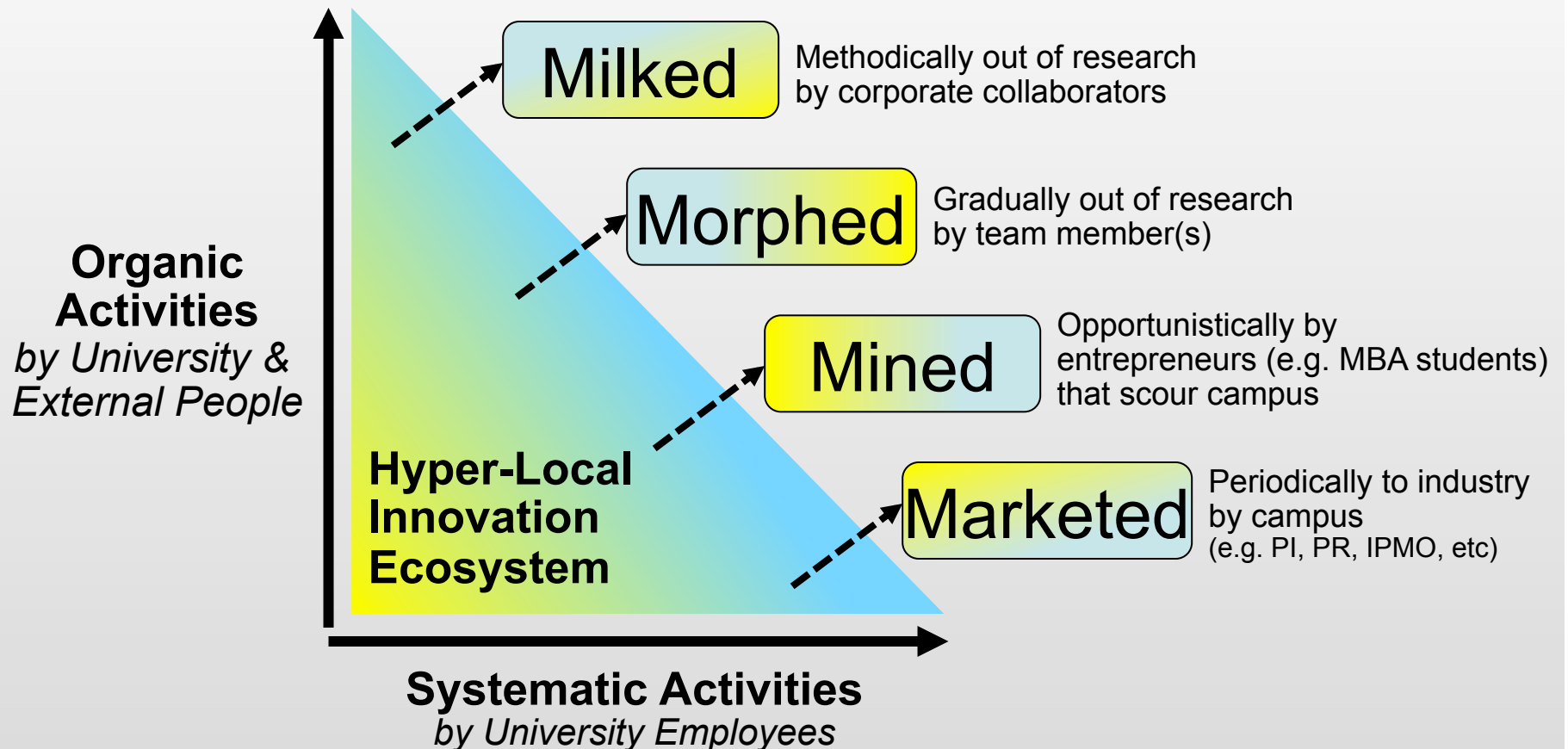
- ❑ Identified 4 common starting point patterns
- ❑ Developed strategies for optimizing the 4 starting points
- ❑ Strategies led (in part) to:
  - BerkeleyStartupCluster.com in 2009
  - QB3 East Bay Innovation Center in 2010
  - The Skydeck in 2011

The 4Ms  
of Commercializing  
University Innovations

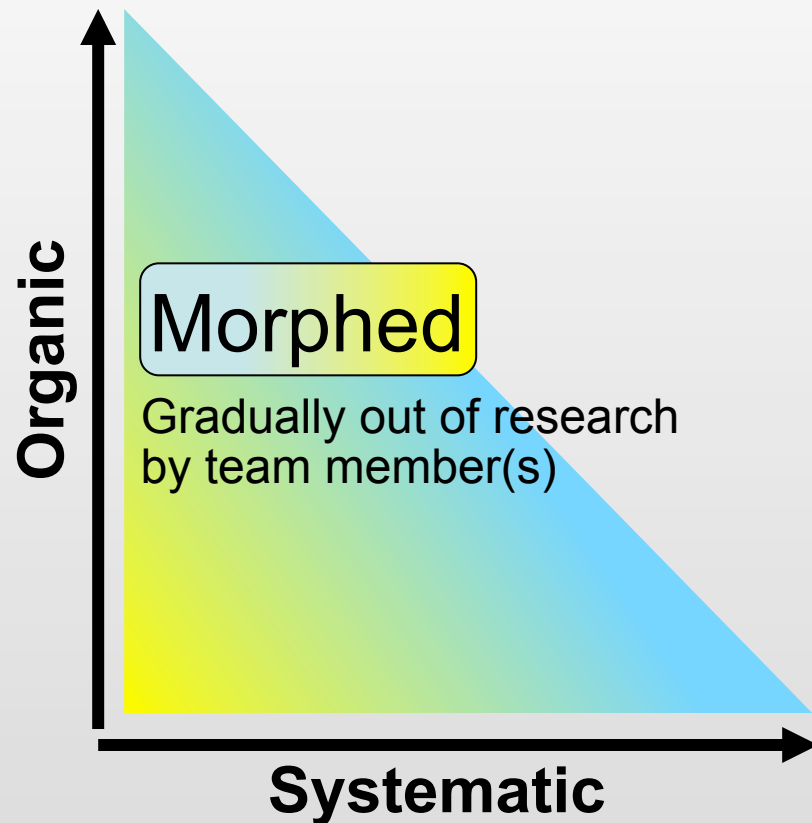




## Framework: 4M Starting Points for Commercialization

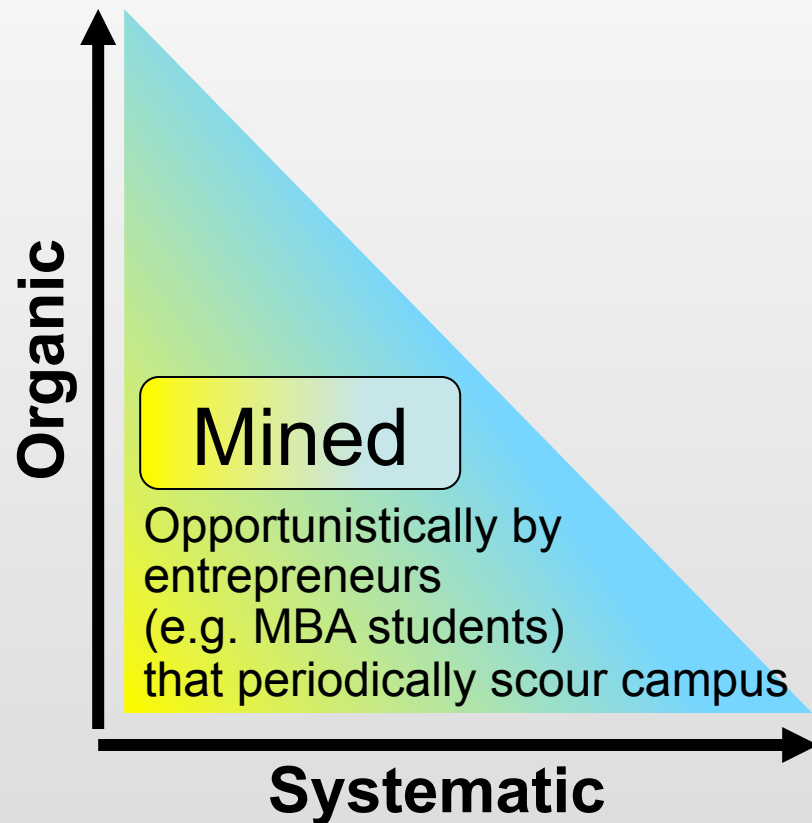


## 4Ms Framework: *Morphed*, *Mined*, *Milked*, *Marketed*



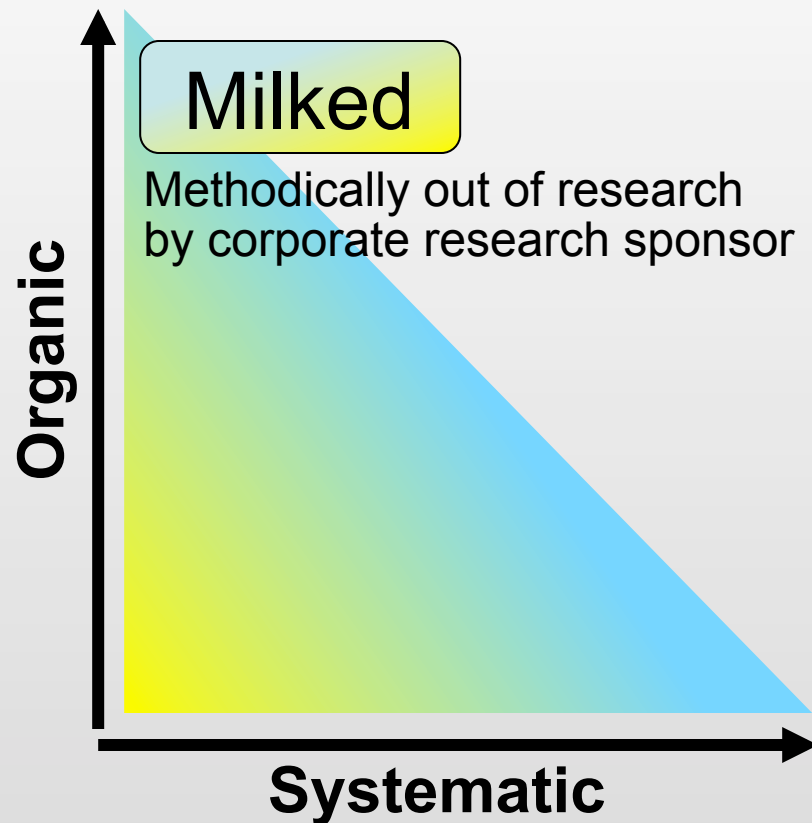
- ❑ Examples: [Amyris](#), Calimetrics, [CaliSolar](#), CellASIC, Chiron, [Ensignta Security \(FireEye\)](#), Excellin, Fluxion Biosystems, [GoodGuide](#), Harmonic Devices, [Hybrid Wisdom Labs](#), Indoor Reality, Inktomi, Integrated Diag, IntelliOne, Kalinex, Lumiphore, Mercator Med, [MicroClimates](#), MicroFluIDX, OnWafer, ON Diagnostics, Persistent Efficiency, PhotoSwitch Bioscience, Redwood Bioscience, Safely, SiClocks, TheraFuse, Urban Scan, US Bionics, Verimetra Med, Wireless Industrial Tech, Dust Networks, Iris AO, SiTime, NanoGripTech
- ❑ Drivers:
  - Quantity & Quality of Research
  - **Ecosystem: Spin-out vs Blast-out**
- ❑ IP:
  - Some obtain exclusive license to improve biz plan & attract investors
  - Some ignore or abscond with IP

## 4Ms Framework: *Morphed, **Mined**, Milked, Marketed*



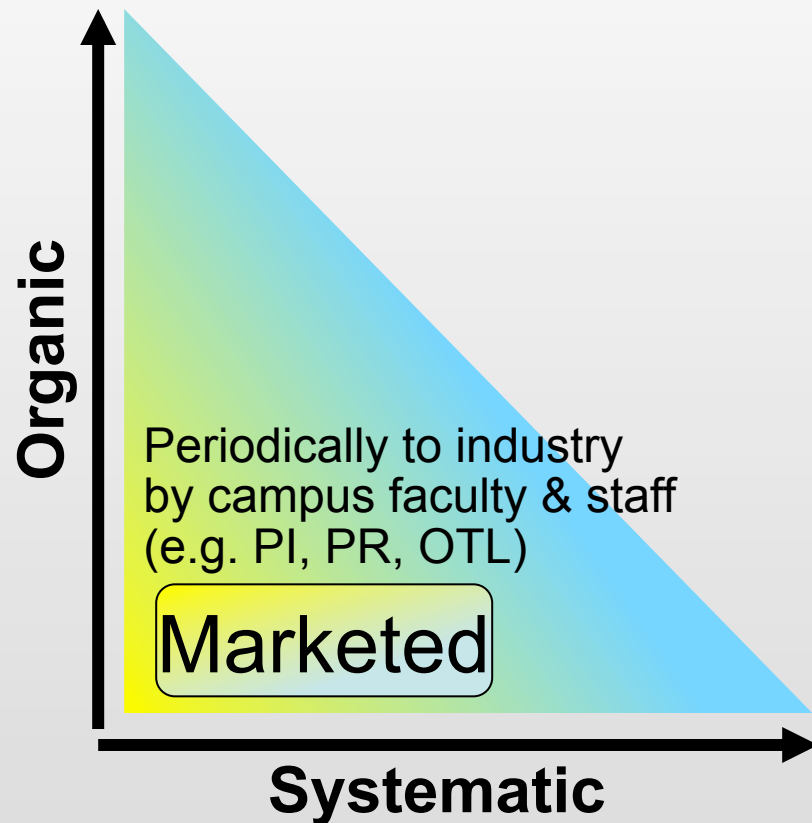
- ❑ Examples: **Adura Tech (Acuity)**, **Aurora Biofuels**, CommandCAD, Euclid Media, **MediFuel**, NanoRay, nanoPrint
- ❑ Drivers:
  - Quantity & Quality of Research
  - MBAs, Biz plan comp, OTL mrktg
- ❑ IP:
  - Many obtain exclusive license to improve biz plan & attract investors
  - Some ignore or abscond with IP
- ❑ Comments:
  - **Pathway with highest growth rate**
  - **Many campus EIRs are MBA students**

## 4Ms Framework: *Morphed, Mined, **Milked**, Marketed*



- ❑ Examples (*that licensed IP*):  
Analog Devices, **Nueprene** (XL Tech), **Google (streetscape)**, Honeywell, Intel, Berkeley Bionics (first morphed then milked)
- ❑ Drivers:
  - Great sponsored research with optimized terms (i.e. 1st access, NERF, open source, etc)
  - Off-campus corporate labs (i.e. BWRC, Intel, Cadence, Yahoo, Starkey, etc)
- ❑ IP:
  - Some jointly own IP
  - Some obtain a license to legally use IP or thwart competitors
  - Some ignore or abscond with IP (why license when get know-how)

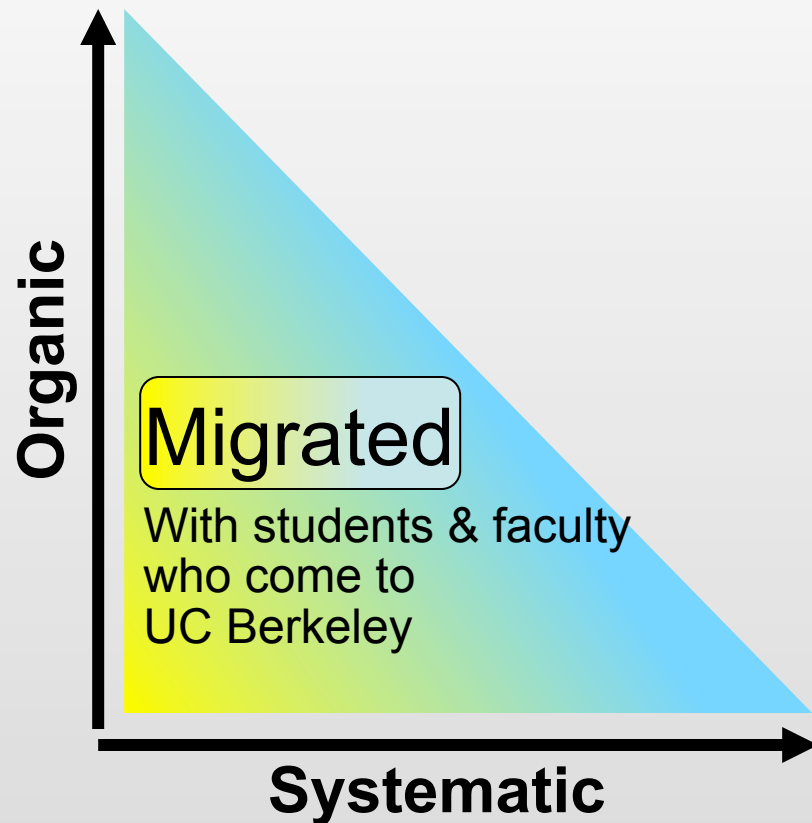
## 4Ms Framework: *Morphed, Mined, Milked, Marketed*



- ❑ Examples: [Arkal Medical](#), Cisco, [ClimateCooler](#), [FuelFX](#), [Luminus Devices](#) (laser lift-off), Honeywell, Microchip Biotech, Renovis, [Sand9](#), Silicon Basis, [Solexel](#), Vitesse, 3M
- ❑ Drivers:
  - Quantity & Quality of Research
  - Marketing (i.e. IP Licensing offices, University PR programs, Faculty pubs & ppts, Patent pubs, etc)
- ❑ IP:
  - Most obtain exclusive license to stay legal, improve BP, attract investment, or thwart competitors
  - Some ignore IP or abscond with IP
- ❑ Comments: Didn't get *morphed, milked* or *mined* because tech or market too nascent when invented

## Recent 5th Starting Point: *Migrated*

---



- ❑ Examples: TBD
- ❑ Drivers:
  - Student admissions?
  - Faculty recruitment?
- ❑ IP:
  - Probably not owned by UC
  - Collaborate with previous institution
- ❑ Comments:
  - Growing pathway
  - Has lots of merit for UCB ecosystem (a form of importing innovation)

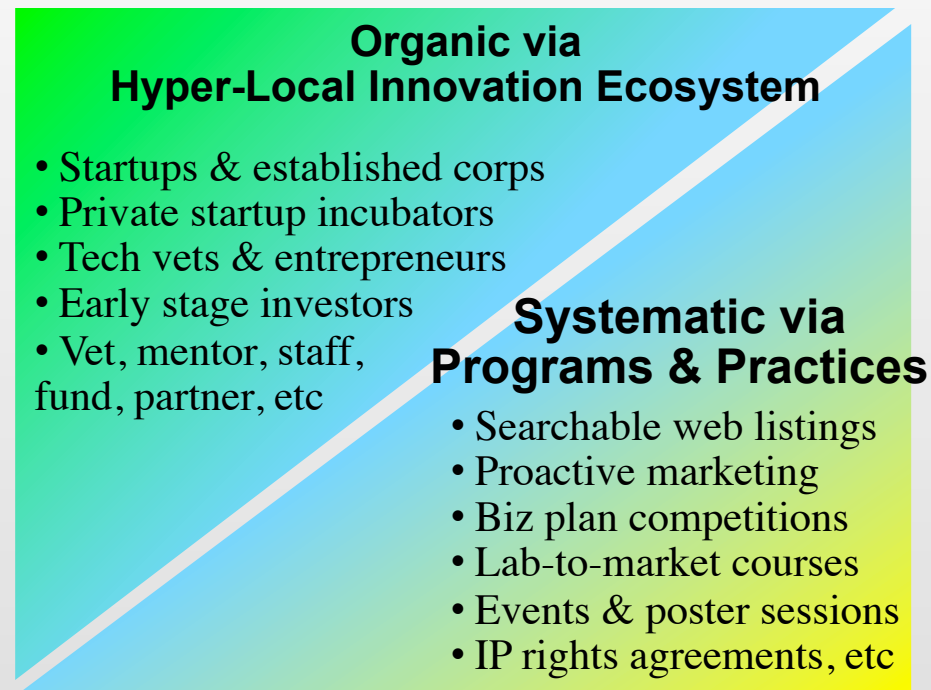


## Research: *What Campus Activities Drive the 4Ms ?*

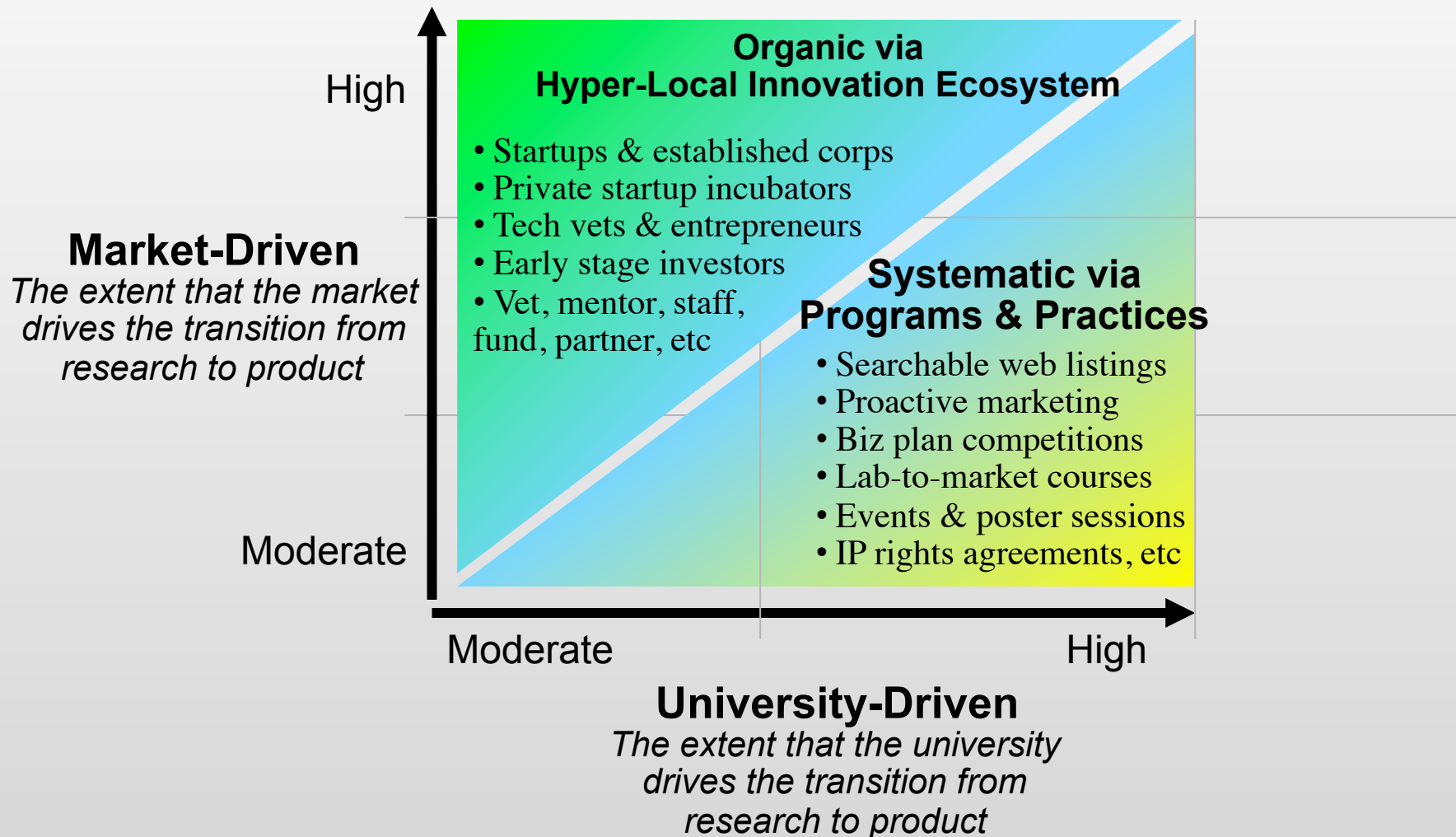
Pathways (4Ms)	Activities, Catalysts, Programs, Initiatives	Recent Progressive Approaches	Offices	Ideas & Comments
<b>Morphed</b>	<ul style="list-style-type: none"> <li>•Entrepreneurship classes</li> <li>•On-campus Incubators</li> <li>•Entrepreneurial Admissions</li> <li>•Entrepreneurial Culture</li> </ul>	<ul style="list-style-type: none"> <li>•On-campus incubators co-located with special lab facilities</li> </ul>	<ul style="list-style-type: none"> <li>•CET (CoE)</li> <li>•Haas (MOT, Lester)</li> <li>•OTL</li> </ul>	<ul style="list-style-type: none"> <li>•SBIR/STTR help center</li> <li>•Berkeley Startup Cluster</li> </ul>
<b>Mined</b>	<ul style="list-style-type: none"> <li>•Entrepreneurial MBA Program (EIRs)</li> <li>•Biz Plan &amp; Tech Competitions</li> <li>•Research-to-Market Courses (C2M)</li> <li>•Seminars &amp; Poster Sessions (YAPS)</li> <li>•Haas Speaker Series &amp; VC Office Hours</li> <li>•Haas Bancroft Incubator</li> </ul>	<ul style="list-style-type: none"> <li>•Cleantech-2-Market Course</li> </ul>	<ul style="list-style-type: none"> <li>•Haas (Lester)</li> <li>•OTL</li> <li>•CoE</li> <li>•CITRIS</li> <li>•QB3</li> <li>•Student Clubs (BERC)</li> </ul>	<ul style="list-style-type: none"> <li>•Berkeley Startup Cluster</li> <li>•Berkeley Center for Growth Companies</li> </ul>
<b>Milked</b>	<ul style="list-style-type: none"> <li>•Institutional response to RFPs</li> <li>•Opportunistic PIs</li> <li>•Sponsored Research Agreements</li> <li>•Visiting Industrial Fellows</li> <li>•Faculty Consulting &amp; Student Hiring</li> </ul>	<ul style="list-style-type: none"> <li>•Research-Oriented Approach to Managing IP rights (e.g. NERFs, BIP, SRA IP grants, etc)</li> </ul>	<ul style="list-style-type: none"> <li>•VCRO</li> <li>•IPIRA (IAO &amp; OTL)</li> <li>•CoE</li> <li>•CITRIS</li> <li>•QB3</li> </ul>	<ul style="list-style-type: none"> <li>•Adjacent R&amp;D Office Parks/Buildings</li> <li>•Research Enterprise Marketing</li> </ul>
<b>Marketed</b>	<ul style="list-style-type: none"> <li>•Newsletters &amp; Press Releases</li> <li>•Searchable Web Listings</li> <li>•Serial Entrepreneur &amp; VC Discussions</li> <li>•Scholarly Publications &amp; Presentations</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•CoE</li> <li>•OTL</li> <li>•NewsCenter</li> </ul>	<ul style="list-style-type: none"> <li>•EBGC Customer Cred Program</li> <li>•EBGC Cluster Clubs</li> <li>•Email Mktg</li> </ul>

## Bifurcate Campus Activities: *Systematic & Organic*

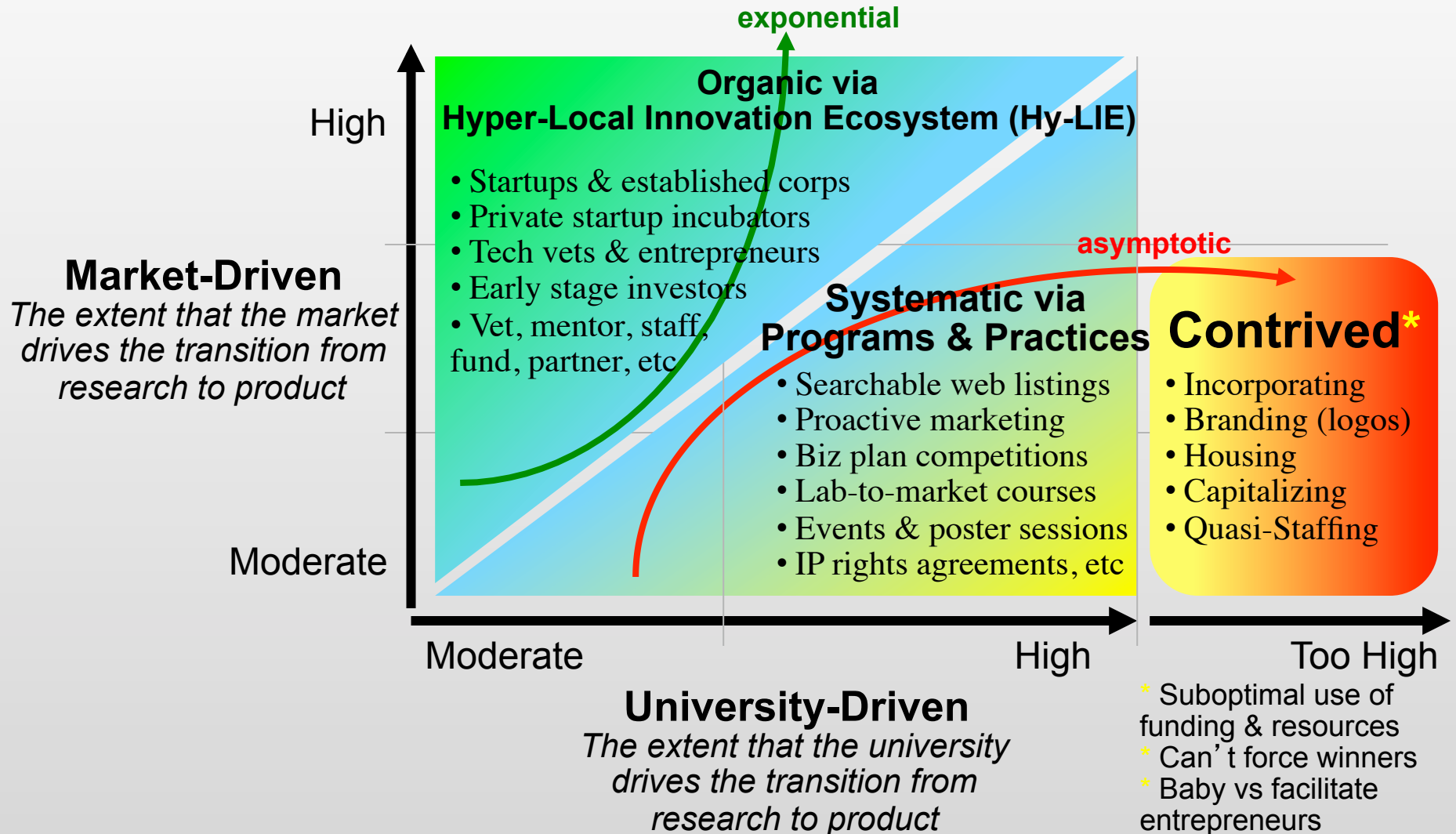
---



# Bifurcate Campus Activities: *Systematic & Organic*

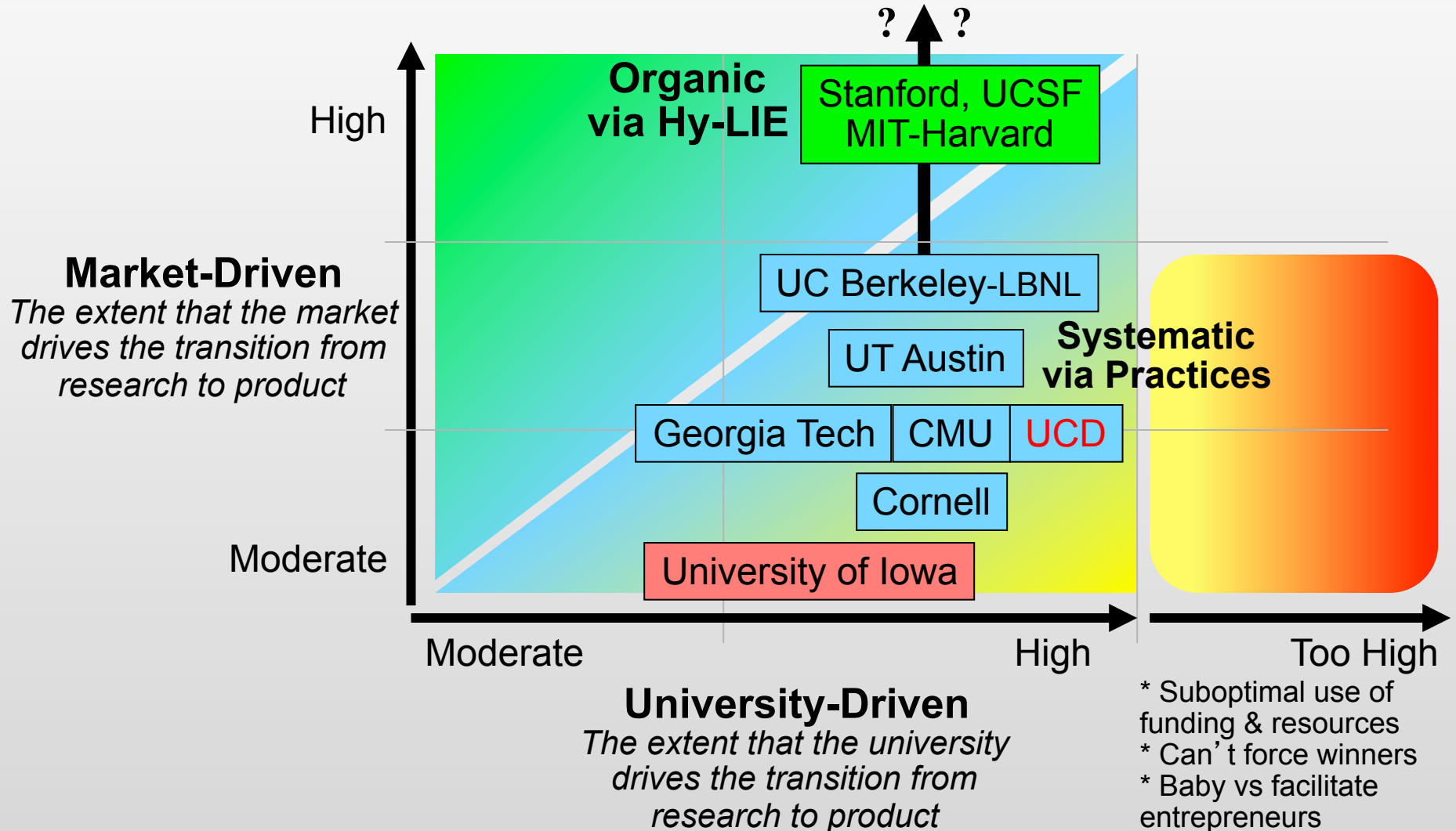


# Systematic v Organic: *Impact - Asymptotic v Exponential*



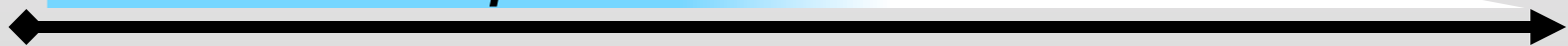
- \* Suboptimal use of funding & resources
- \* Can't force winners
- \* Baby vs facilitate entrepreneurs

# Systematic v Organic: Comparing Position & Potential



# Hyper-Local Innovation Ecosystem (Hy-LIE): *Definition*

**University Hyper-Local Innovation Ecosystem:**  
***Cluster of R&D-oriented entities readily accessible to the campus – including small & large corps, tech vets, entrepreneurs & early stage investors as well as related supply chains & service providers***



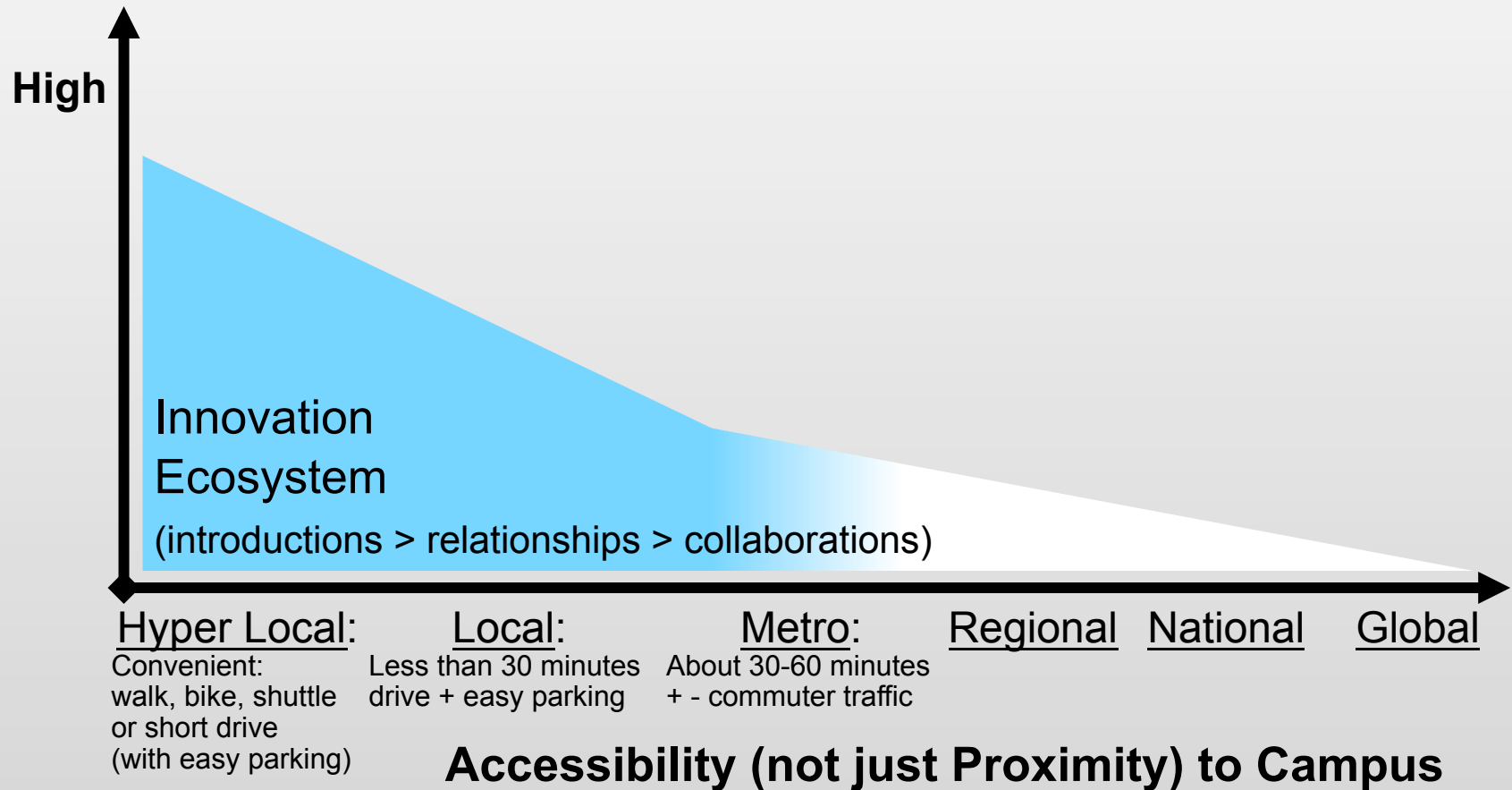
<u>Hyper Local:</u>	<u>Local:</u>	<u>Metro:</u>	<u>Regional</u>	<u>National</u>	<u>Global</u>
Convenient: walk, bike, shuttle or short drive (with easy parking)	Less than 30 minutes drive + easy parking	About 30-60 minutes + - commuter traffic			

**Accessibility (not just Proximity) to Campus**



# Hy-LIE: Strategic Value to University

**Relationship-Driven Opportunities for the University's Mission**



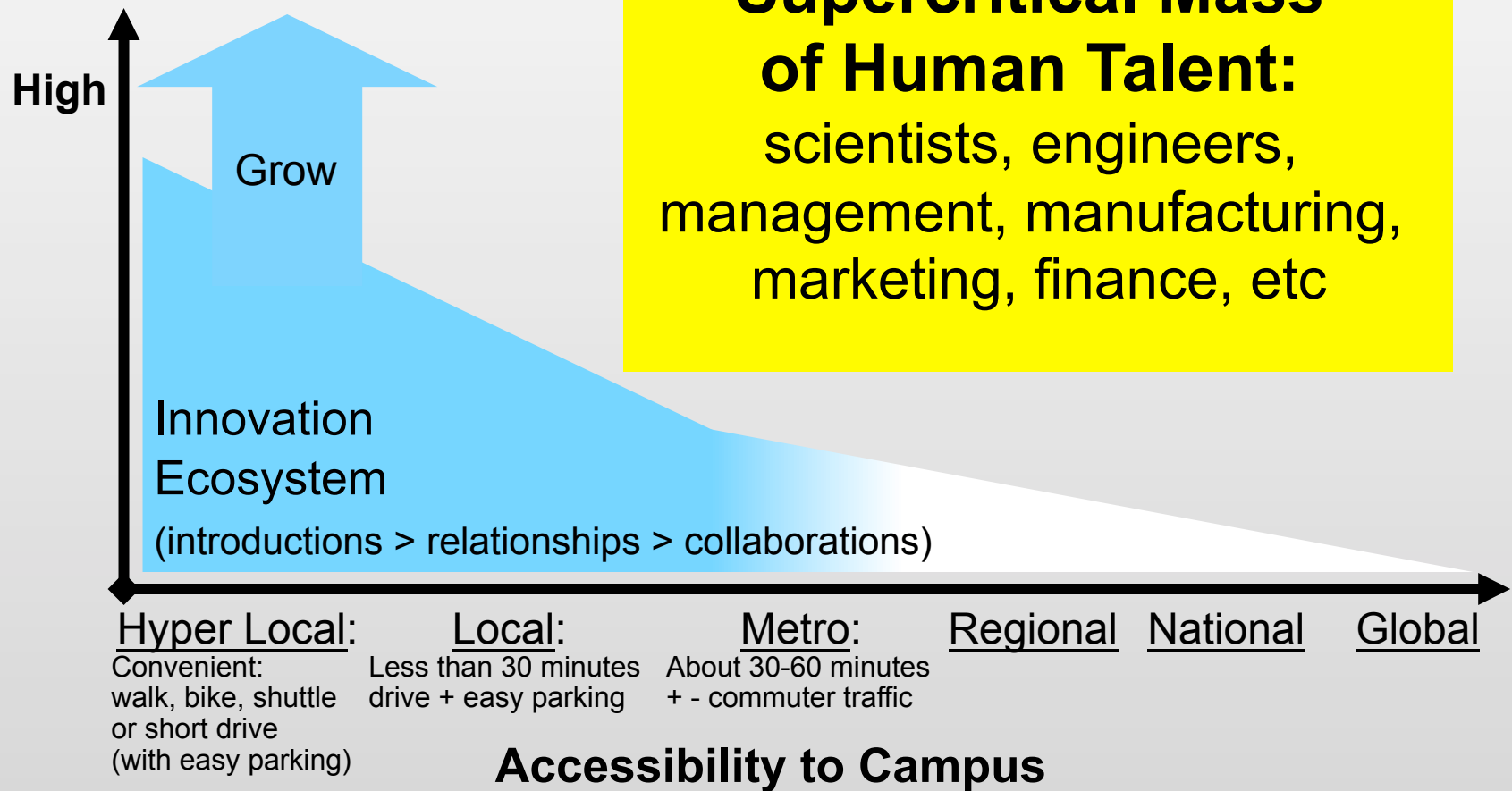
# Hy-LIE: *Bolster Research, Education & Tech Xfer*

## Relationship-Driven Opportunities for the University's Mission



# Hy-LIE: A Key Attribute of Planet's Top Hy-LIEs

Relationship-Driven Opportunities for the University's Mission



## Supercritical Mass: *Waypoint Versus Vortex Univ.*

---

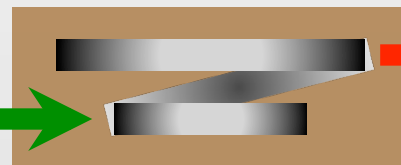
**Supercritical Mass  
of Human Talent:**  
scientists, engineers,  
management, manufacturing,  
marketing, finance, etc

# Waypoint University: *Subcritical Mass of I&E Talent*

---

Year after year of incoming I&E talent:

- Undergrads
- Grad students
- Post docs
- Visiting scholars
- Entrepreneurs in residence

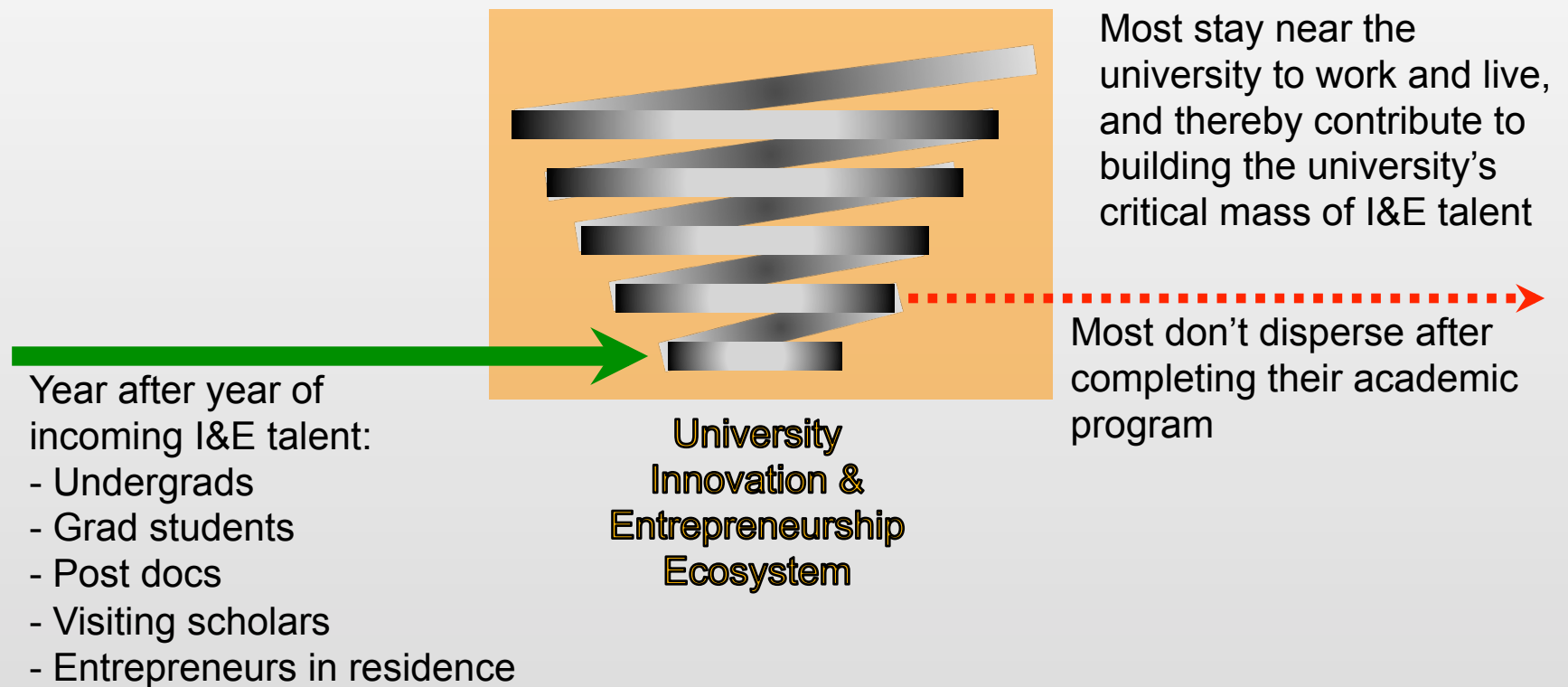


**University  
Innovation &  
Entrepreneurship  
Ecosystem**

Most disperse after completing their academic program, and consequently they don't contribute to building the university's critical mass of high quality, diversified I&E talent

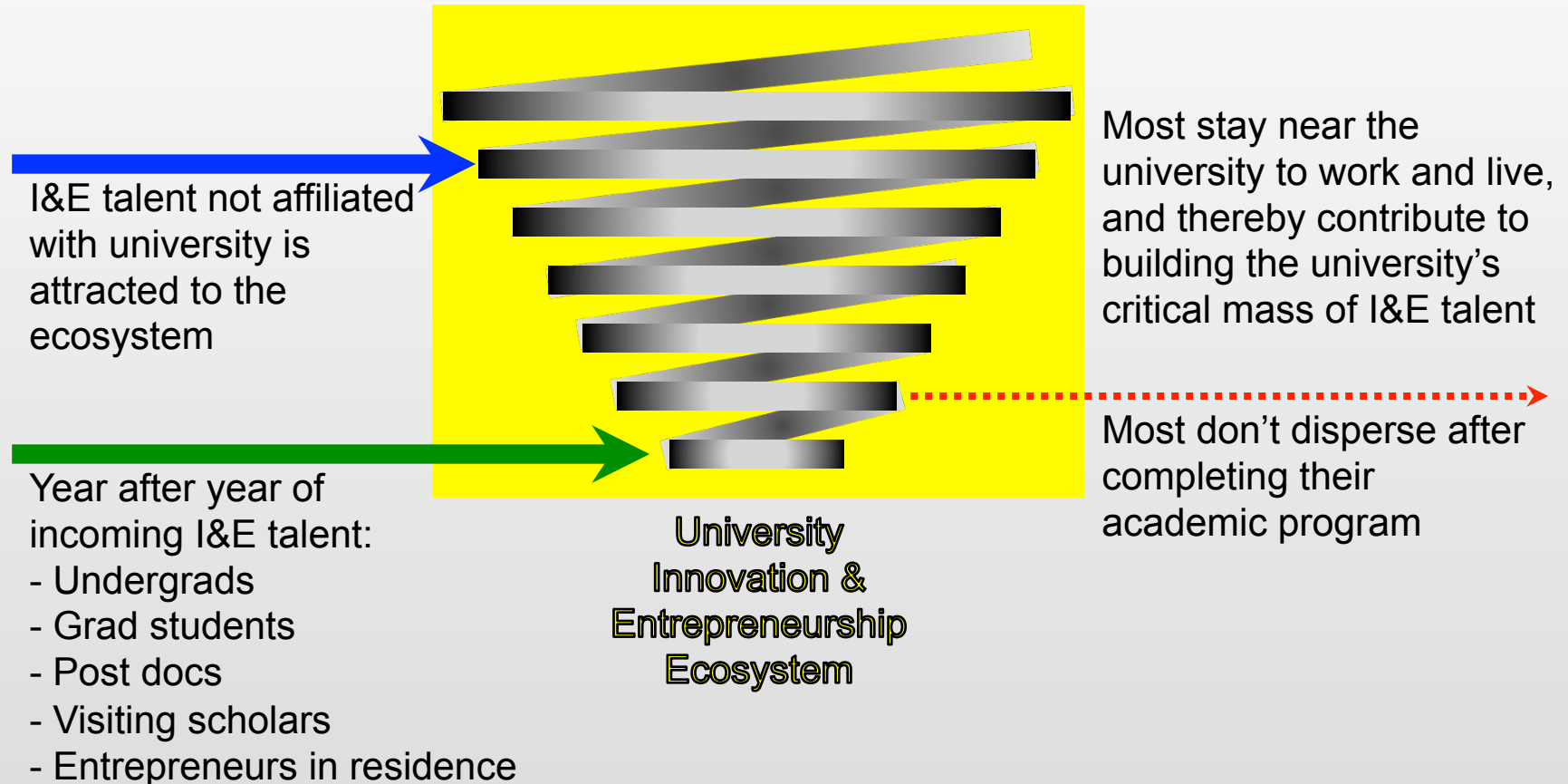
# Vortex University: *Supercritical Mass of I&E Talent*

---





# Vortex University: *World-Class I&E Ecosystem*



# Strategy: *Hy-LIE* Effect on *STEM-B* Programs

---

Rating of University  
STEM-B Programs

High

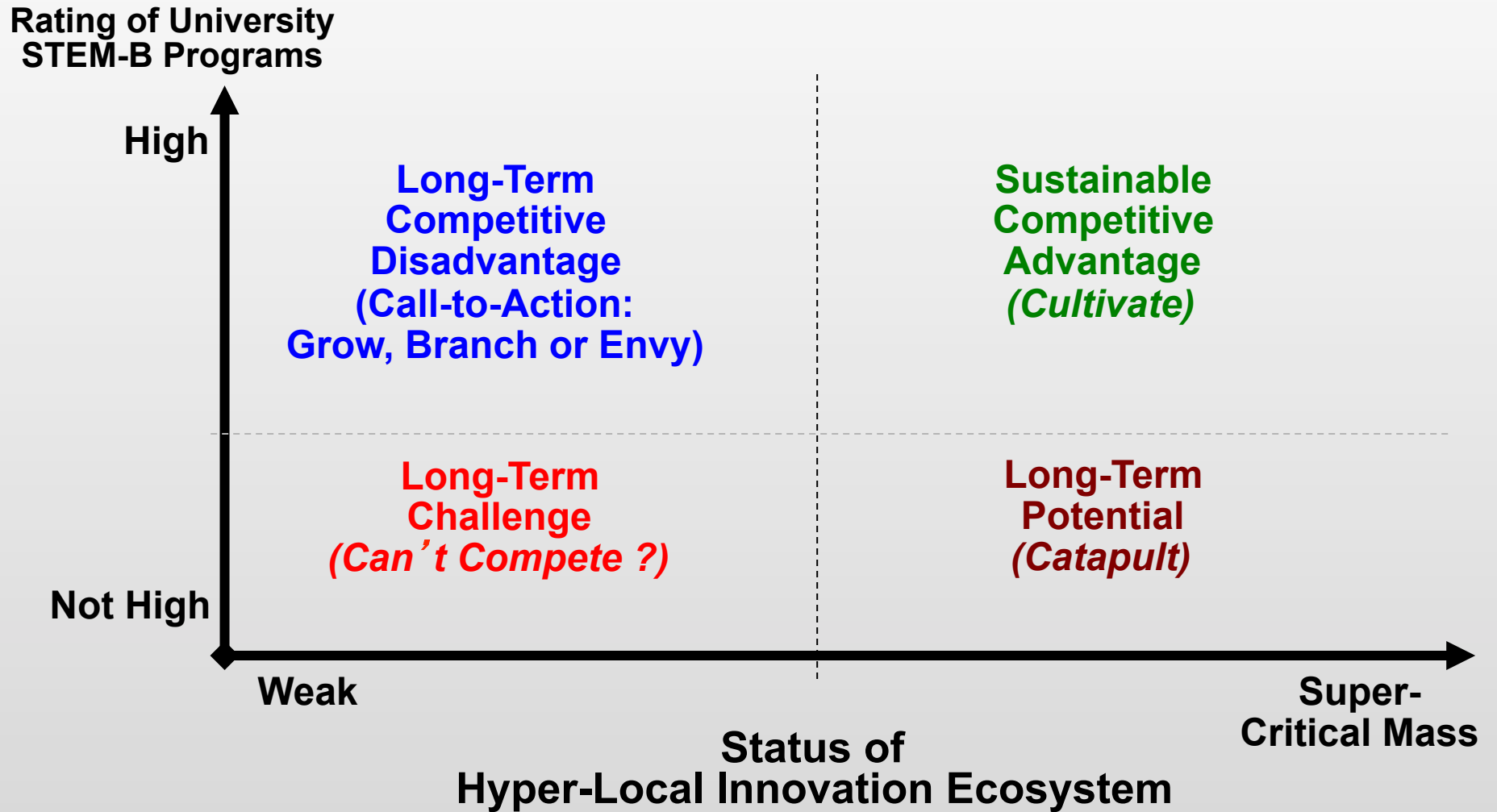
Not High

Weak

Status of  
Hyper-Local Innovation Ecosystem

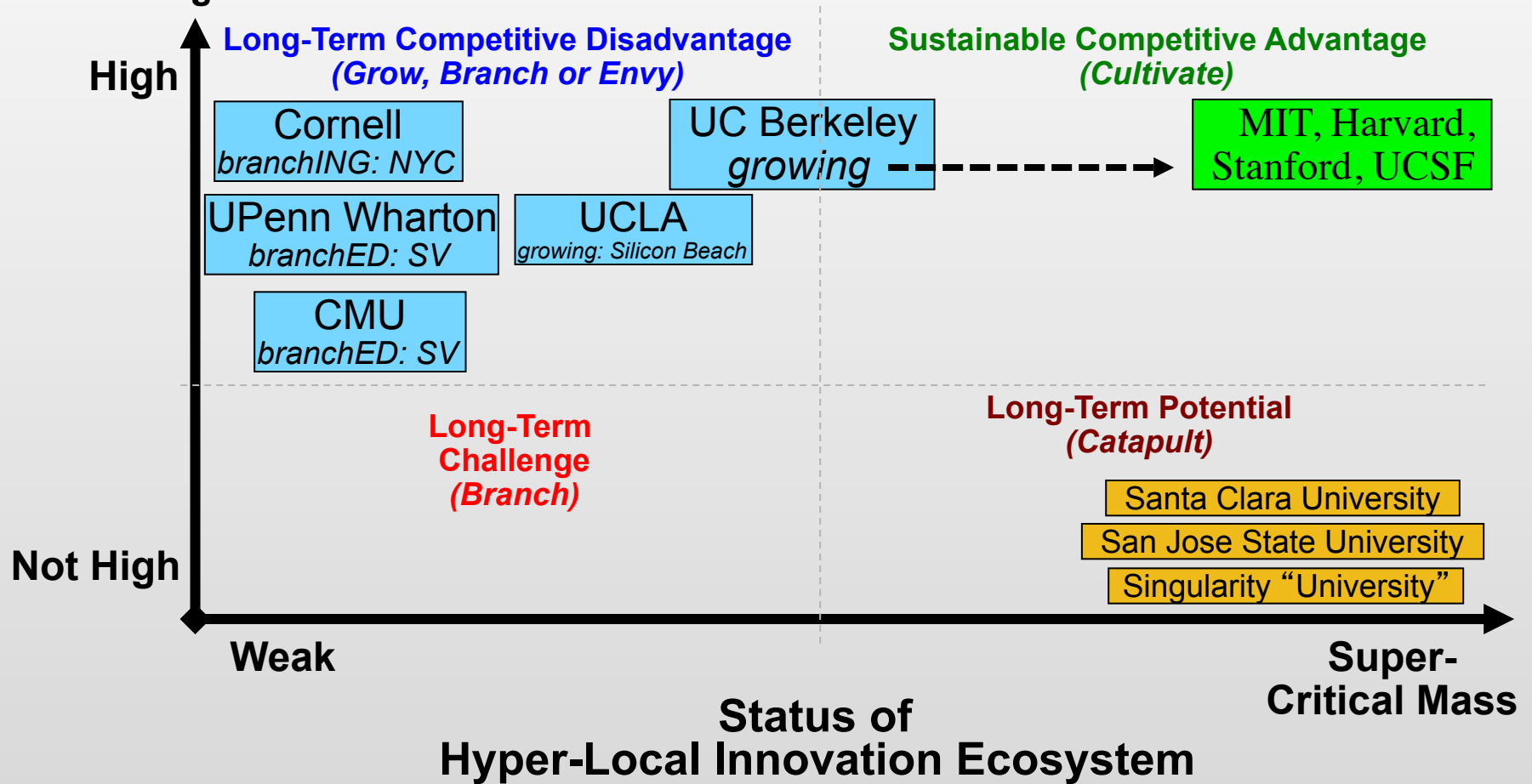
Super-  
Critical Mass

# Strategy: *Hy-LIE* vs *STEM-B* Segmentation



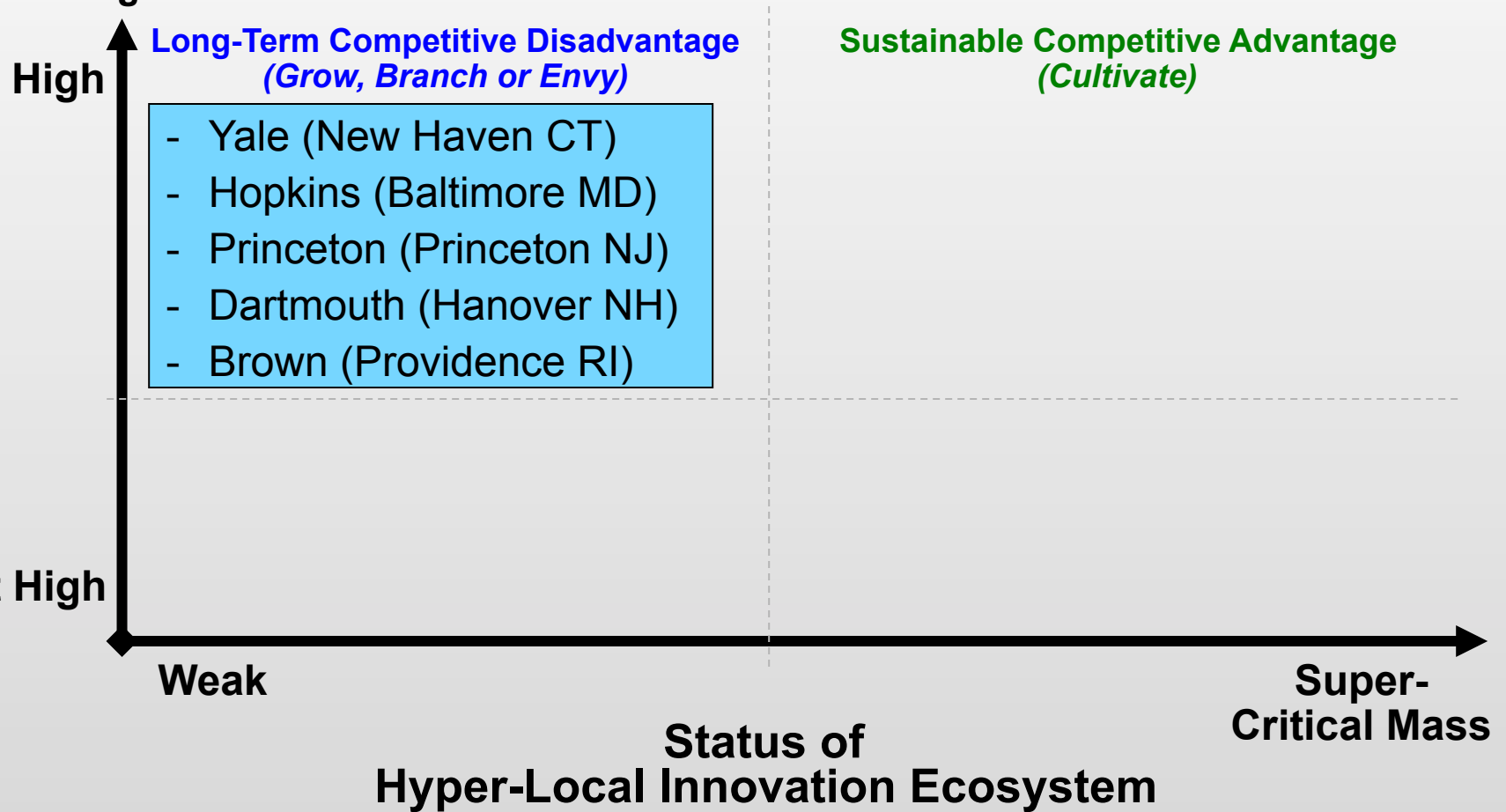
# Strategy: *Grow, Branch or Envy (Die)*

Rating of University  
STEM-B Programs



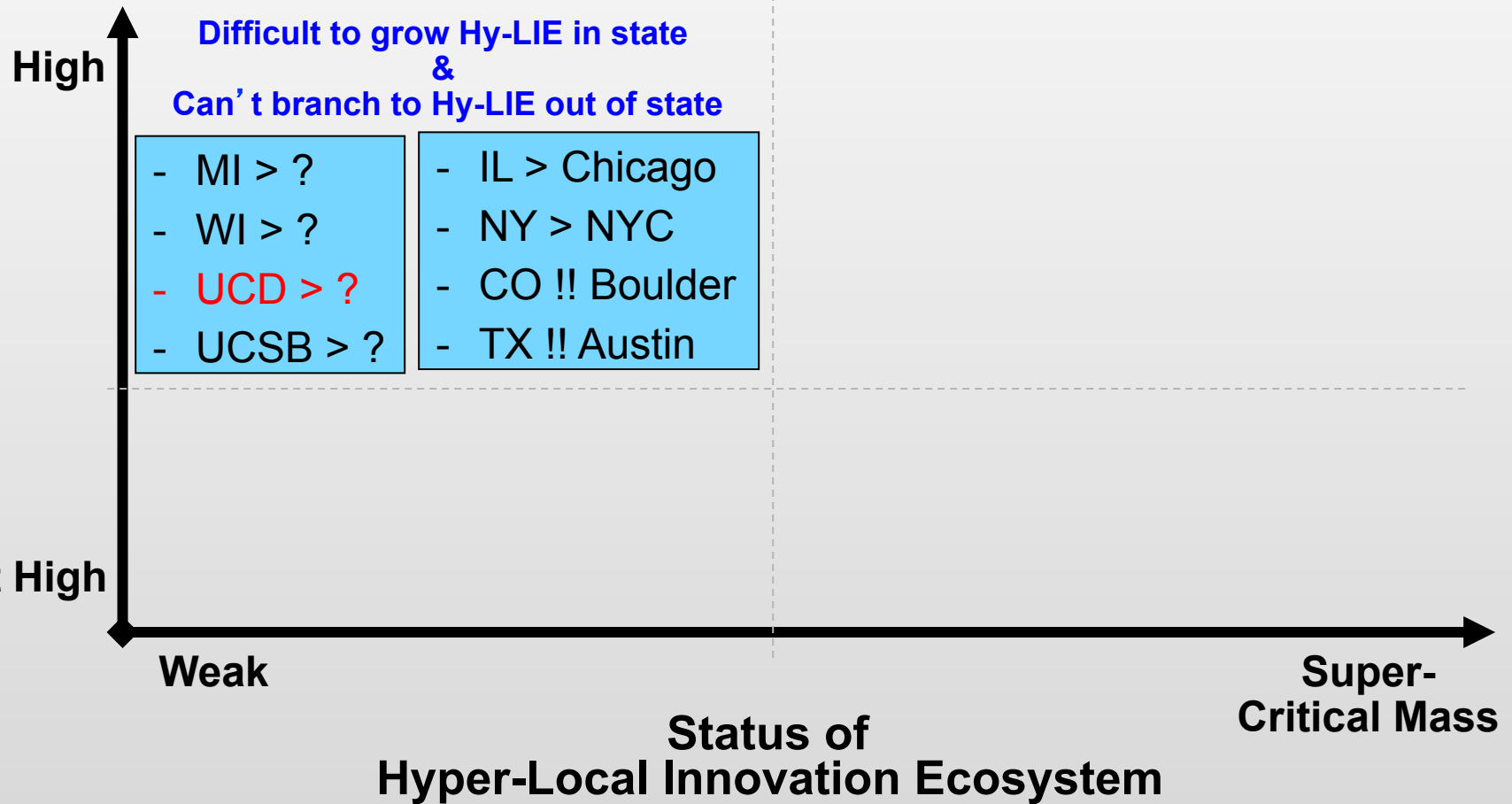
# Strategy: Univ Ratings Based on Many Factors

Rating of University  
STEM-B Programs



# Strategy: *Dilemma for Some Public Univs*

Rating of University  
STEM-B Programs



## Agenda: Q&A + *Follow-up*

---

**Mike Cohen**

**Director, Innovation Ecosystem Development**

**UC Berkeley Office of Technology Licensing**

**[mike.c@berkeley.edu](mailto:mike.c@berkeley.edu)**

**510-643-7201**