



Universities as Changemakers: Innovation in Research & Economic Development

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Innovation in Research & Economic Development

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April 21, 2022

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Lessons to Be Learned

Universities are anchor institutions playing the lead role in economic development.

Lessons:

- Play to your strengths.
- Play the long game.
- Build partnerships and alliances.
- Communicate and explain.



Then.....Now



Play to Your Strengths

- Atlanta
- NYC
- Austin
- Boston
- New Mexico



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Play the Long Game

Tech Square:

- **1996-1997:** Summer Olympics & GT Strategic plan: Tech President Wayne Clough asked the Georgia Tech Foundation to buy \$60 million in land for campus expansion.
- **2003:** Ribbon cutting for Tech Square
- **2006:** Fifth Street Bridge
- **2012 →:** 35 corporate innovation centers.
- **Today:** NCR, Anthem, Norfolk Southern, Dematic Headquarters.



1987



*Today you are seeing the result of **25 years** of planning and activities. And we are planning Science Square for the next 25 years.*

WHO DELIVERS INNOVATION DISTRICTS

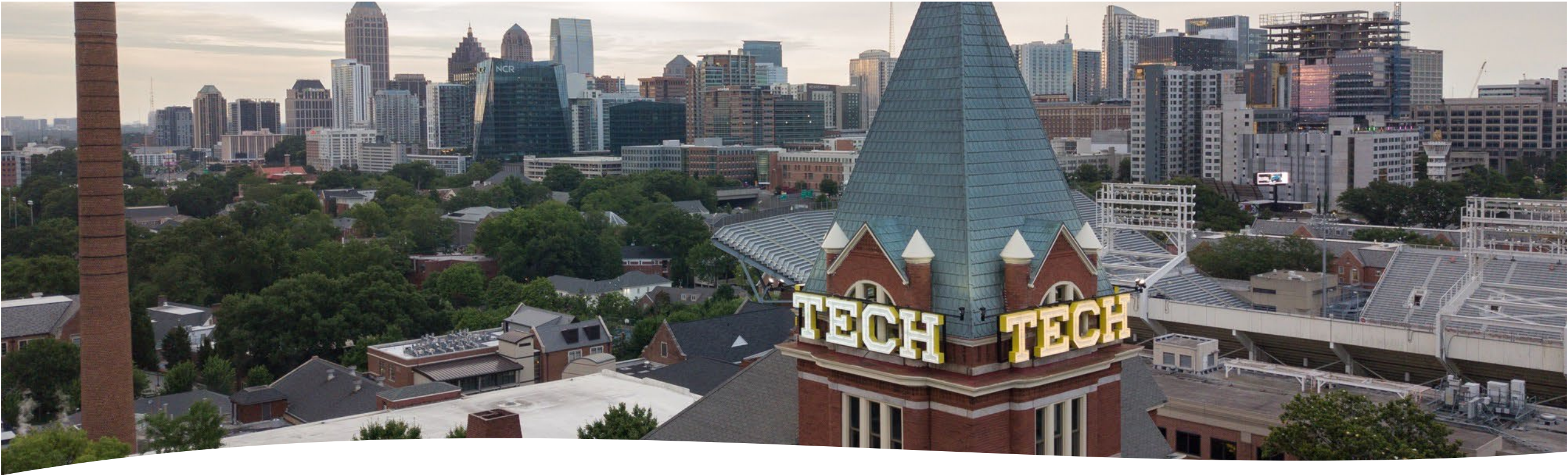
[The Rise of Innovation Districts: A New Geography of Innovation in America](#)

Bruce Katz and Julie Wagner

Metropolitan Policy Program

Brookings

- **Mayors and local governments**, such as former Mayor Tom Menino of Boston, former Mayor Joan Clos of Barcelona, and the Stockholm city government.
- **Major real estate developers and major land owners**, such as Vulcan Real Estate in Seattle's South Lake Union and the Brooklyn Navy Yard.
- **Managers of research campuses**, such as the Research Triangle Park Foundation in Research Triangle Park and the Texas Medical Center in Houston.
- **Anchor companies**, such as Quicken Loans in Detroit, Comcast in Philadelphia, and Amazon in Seattle's South Lake Union.
- **Advanced research institutions**, such as Washington University in St. Louis, Carnegie Mellon in Pittsburgh, Drexel University in Philadelphia, and MIT in Cambridge.
- **Advanced medical campuses**, such as the Henry Ford Health System in Detroit and the University of Pittsburgh Medical Center in Pittsburgh.
- **Philanthropic investors**, such as the New Economy Initiative and the Kresge Foundation in Detroit and the former Danforth Foundation in St. Louis.
- **Incubators, accelerators, and other economic cultivators**, such as Barcelona Activa in Barcelona, the Cambridge Innovation Center in Cambridge, and the BioGenerator in St. Louis.
- **Social networking programmers**, such as Venture Café Foundation in Boston and Cambridge and High Tech Campus Eindhoven.



Build Partnerships and Alliances

Tech Square was built by a coalition of local government, higher-ed corporations, venture capitalists, foundations, and community organizations. Innovation can happen anywhere, but an ecosystem is needed to sustain it.

Communicate and Explain

But also act...



"I've missed more than 9,000 shots in my career. I've lost almost 300 games. Twenty-six times I've been trusted to take the game-winning shot and missed. I've failed over and over and over again in my life.

And that is why I succeed."

- Michael Jordan

Next: 10 actions to create successful partnerships.

Access to Talent

1

Universities
complementing
collaborative spaces
with talent-centric
programming



2

University leaders
centering industry's
interest in
sponsored research
partnerships around
access to talent



[Source: EAB “10 Trends to Guide University Leaders in Growing Industry Partnerships”](#)

Organizational Design

3

Leaders centralizing university partnership access point to promote deeper business engagements



4

Universities using applied research arrangements so universities can access large pool of industry research funding

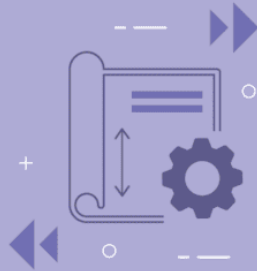


[Source: EAB “10 Trends to Guide University Leaders in Growing Industry Partnerships”](#)

Innovation

5

Large companies
less interested
in university
intellectual property



6

Universities targeting
support of innovative
ventures to maximize
investment return



7

University leaders
signaling a business-
friendly environment
through templated
partnership agreements



Economic Development

8

Joint government-industry funding programs growing in scale and boosting university research strength



9

Regional economic development entities partnering with universities to catalyze industry investment



10

Universities collaborating via interinstitutional research consortia to better attract industry





Setting Up a Research & Economic Development Organization

The three roles of the CRO and the research office:

- Support & safeguard research.
- Initiate & accelerate research.
- **Propagate** & communicate research.

Start with a plan!



Research Next Phase 2: Mission, Vision, and Goals

Mission Statement:

To catalyze research and innovation that matter and improve the human condition.

Vision Statement:

Inspiring and creating solutions to make **the needed a reality**, making the impossible possible.

Goal Teams:

Amplify Impact

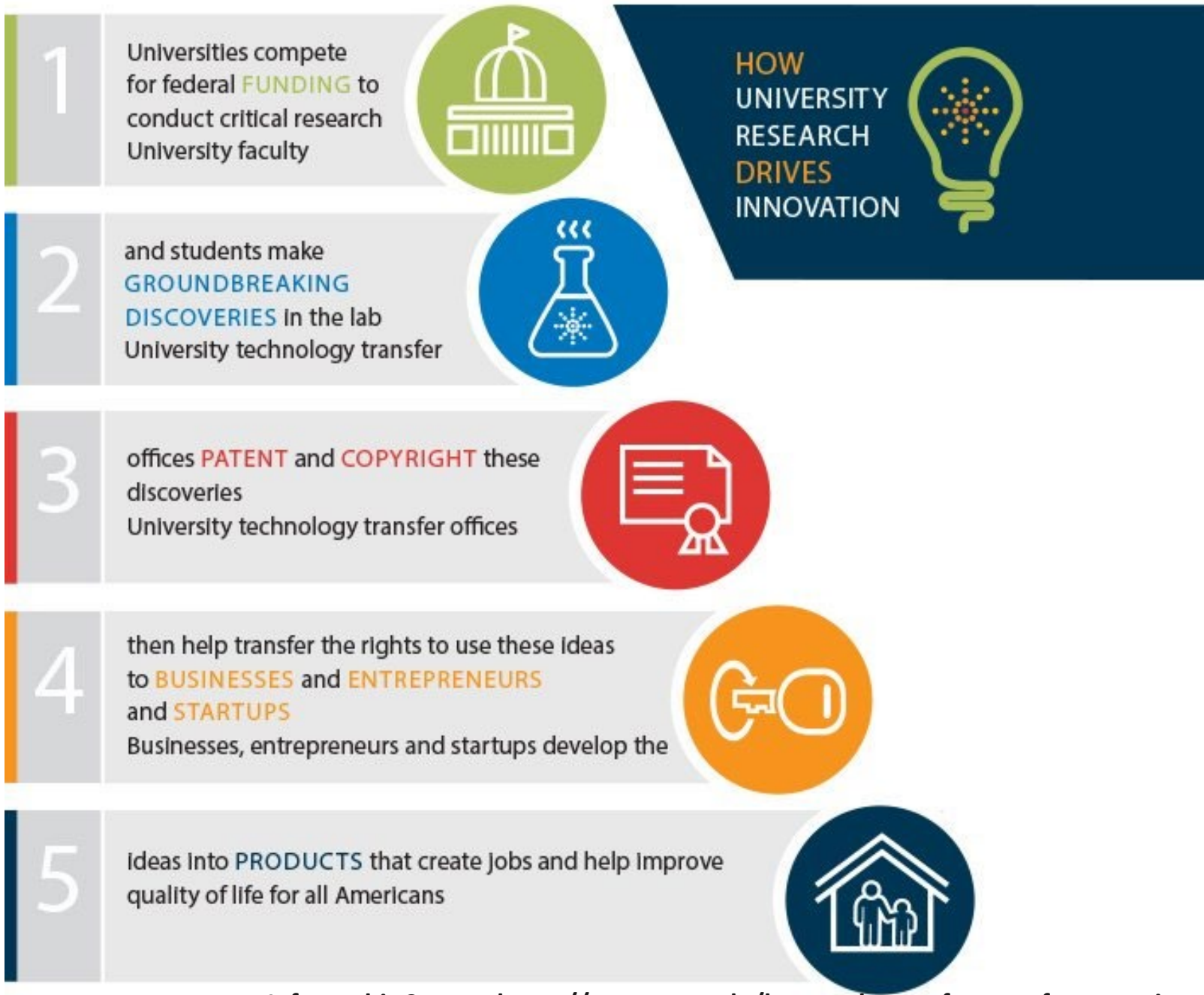
Connect Globally

Cultivate Well-being

Champion Innovation

Expand Access

Lead by Example



BORN IN THE LAB

DOPPLER
WEATHER
RADAR
DEVELOPED AT
MIT



MAGNETIC
RESONANCE
IMAGING (MRI)
DEVELOPED AT
SUNY



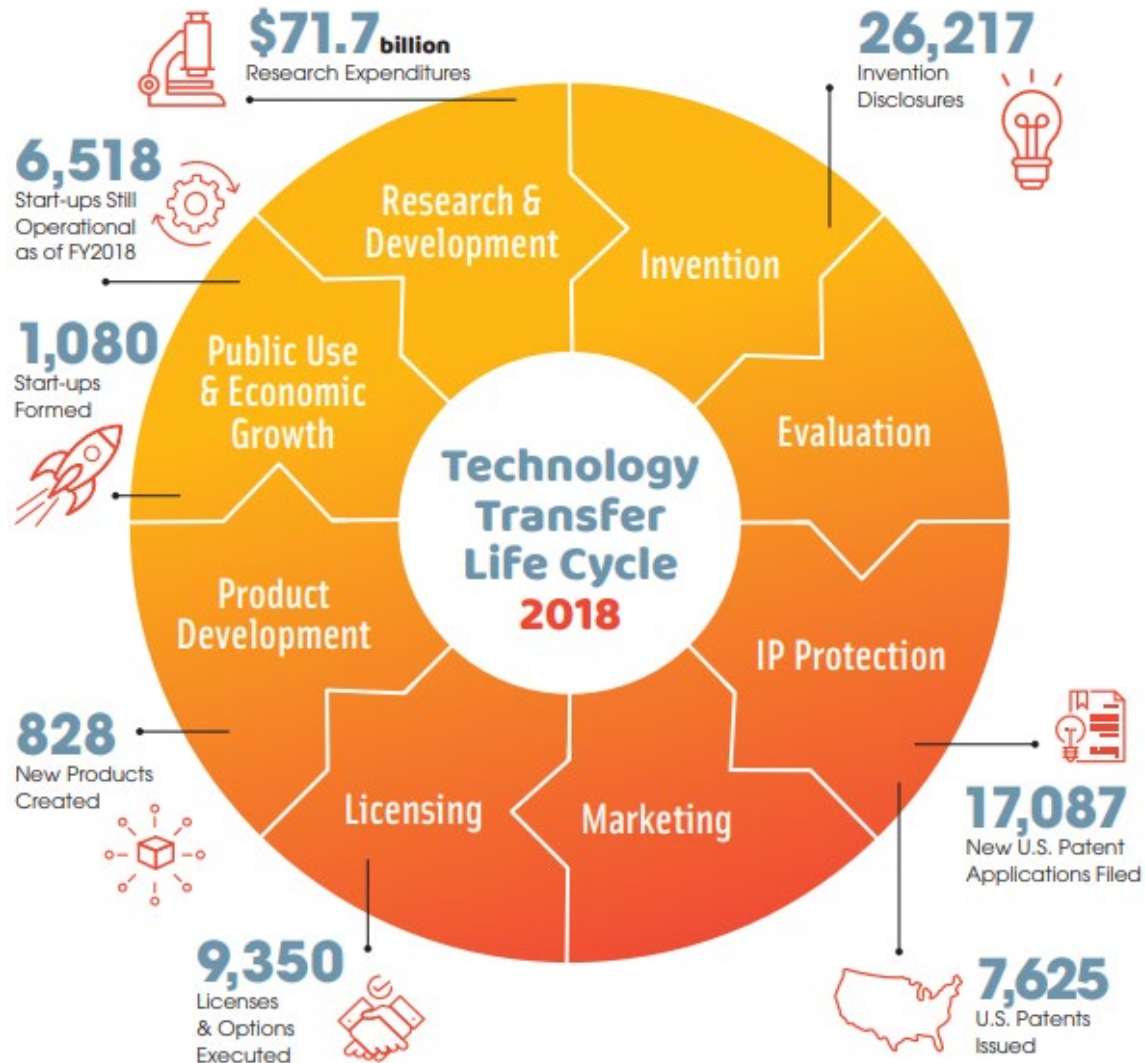
TIME RELEASE
CAPSULE
DEVELOPED AT
UNIVERSITY
OF KANSAS



TOUCHSCREEN
DEVELOPED AT
UNIVERSITY
OF DELAWARE
AND UNIVERSITY
OF KENTUCKY



AUTM FY2018: Tech Transfer at U.S. Universities



The payoff for federal investment in academic research is new products, goods and services; economic development; competitiveness; and national security.

Propagate & Communicate

- Explain research to various constituents through various media.
- Entrepreneurship & Start-ups.
- Licensing.



SEARCH | HELP | MENU

Sharing/gig economy. Generally, if you work in the gig economy or did gig work, you must include all income received from all jobs whether you received a Form 1099-K, Payment Card and Third-Party Network Transactions, or not. See the Instructions for Schedule C (Form 1040) and the Instructions for Schedule SE (Form 1040).

Stolen property. If you steal property, you must report its fair market value in your income in the year you steal it unless you return it to its rightful owner in the same year.



Office of Commercialization



Raghupathy “Siva” Sivakumar
VP of Commercialization and
Chief Commercialization Officer

Mission

World-class commercialization services for GT faculty, staff and students to catalyze research and innovation that matters and improves the human condition.

Vision

To attract and nurture the best entrepreneurial minds, to become a thought leader in redefining commercialization in academia, and to become the #1 university for impact through technology and talent.

Goals

- Create entrepreneurial culture.
- Progress technology readiness.
- Steward intellectual property.
- Launch impactful ventures.
- Enable transformational impact.
- Become a thought leader.



Office of Corporate Engagement



J. Mark Nolan

Associate VP of Corporate
Engagement

- OCE serves as the nexus for the Institute's relationship and activity portfolios with our corporate partners.
- Tasked with facilitating collaboration efforts across partner units, including:
 - EI²
 - Commercialization/Tech Licensing
 - Institute Relations/Economic Development
 - Career Center
 - Scheller College of Business
 - Corporate Contracting
 - And others...

Novel Models: CREATE-X



CREATE-X offers entrepreneurship programs for all students. The programs are organized into three categories: LEARN, MAKE and LAUNCH. Since 2016, CREATE-X has served:

- **5000+** students, launched **300+** ventures, **\$1.4B+** in aggregate startup valuation.
- **\$5M+** raised from other sources, GT commitment and resources.
- Two founders have already given back philanthropically to CREATE-X.

CREATE-X's vision of 100% engagement and 300 ventures/year

- Every GT student going through a CREATE-X program before they graduate.

Novel Models: Industry Specific Startups



Create a Universities-Startups-Industry Nexus

- Create a platform to support startups that serve a particular set of verticals.
- Attract industry partners who operate in that vertical to come on board platform as investors and customers.
- Engage faculty and students to launch startups through the platform and get a ring-side view to entrepreneurship.

Case Study: [Engage](#)

- 14 large corporations serve as limited partners in the Engage Ventures fund.
- Georgia Tech serves as the host for the program.
- Program works with 16-20 startups a year specifically in domains that are of interest to the corporate partners.
- CXO level engagement for the partnership to be successful.
- Georgia Tech receives a portion of both the management fee and the carry for the fund.

Novel Models: Trusted Partner

Serve as a trusted partner for industry to collaborate.

- Create a platform for industry players to collaborate in a trustful fashion.
- Industry brings their pre-production technologies to the platform.
- The technologies are integrated, tested, and researched in a trustful environment at the university.
- Faculty and students get access to state of the art technologies in the domain.

Case Study: [PRC](#)

- The packaging research center (PRC) at Georgia Tech conducts research and education in all aspects of packaging that includes design, materials, process, assembly, thermal management and integration.
- 48 industry/government organizations and 14 universities participate in the center.
- The multi-vendor ecosystem is critical for the participating industry partners to jointly mature their technologies.



Novel Models: Degree++

Provide opportunities to participate in Degree++ programs

- Universities are increasingly investing in degree++ programs that supplement their core curriculum.
- Examples of such programs include entrepreneurship activities, study abroad programs, internship/coop programs, etc.
- There is an opportunity for industry to participate in these degree++ programs to work with students and build relationships in a structured fashion.

Case Study: CREATE-X/Amazon

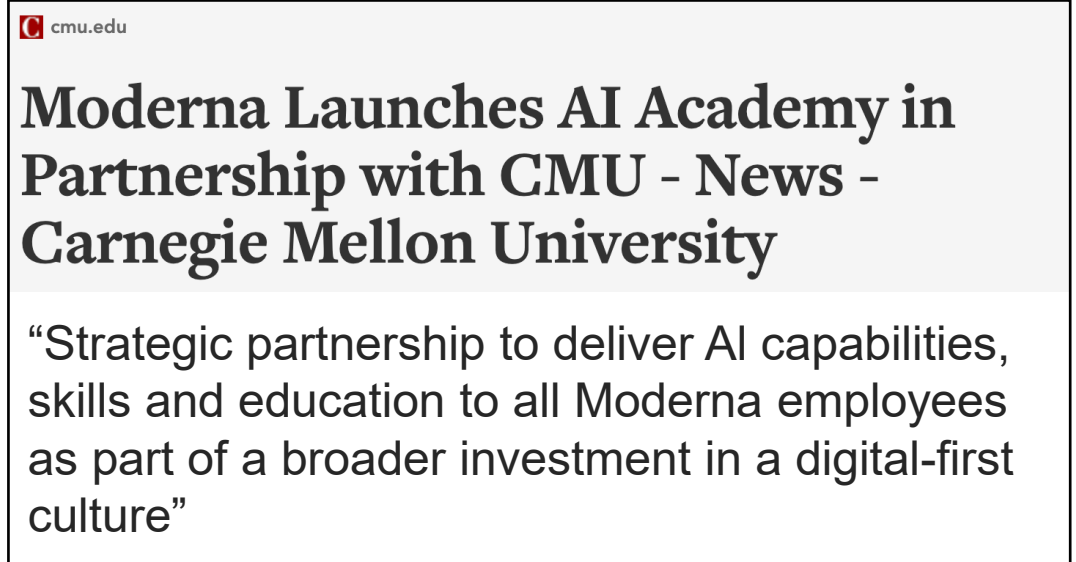
- Amazon is interested in students that are trained in the Alexa technology.
- Through their partnership with CREATE-X, Amazon created a program for students to learn about Alexa and launch startups that rely on the Alexa technology.
- Amazon will consider investing in startups that are viable.
- More importantly, such students are now prime candidates for recruitment.



Novel Models: New Routes

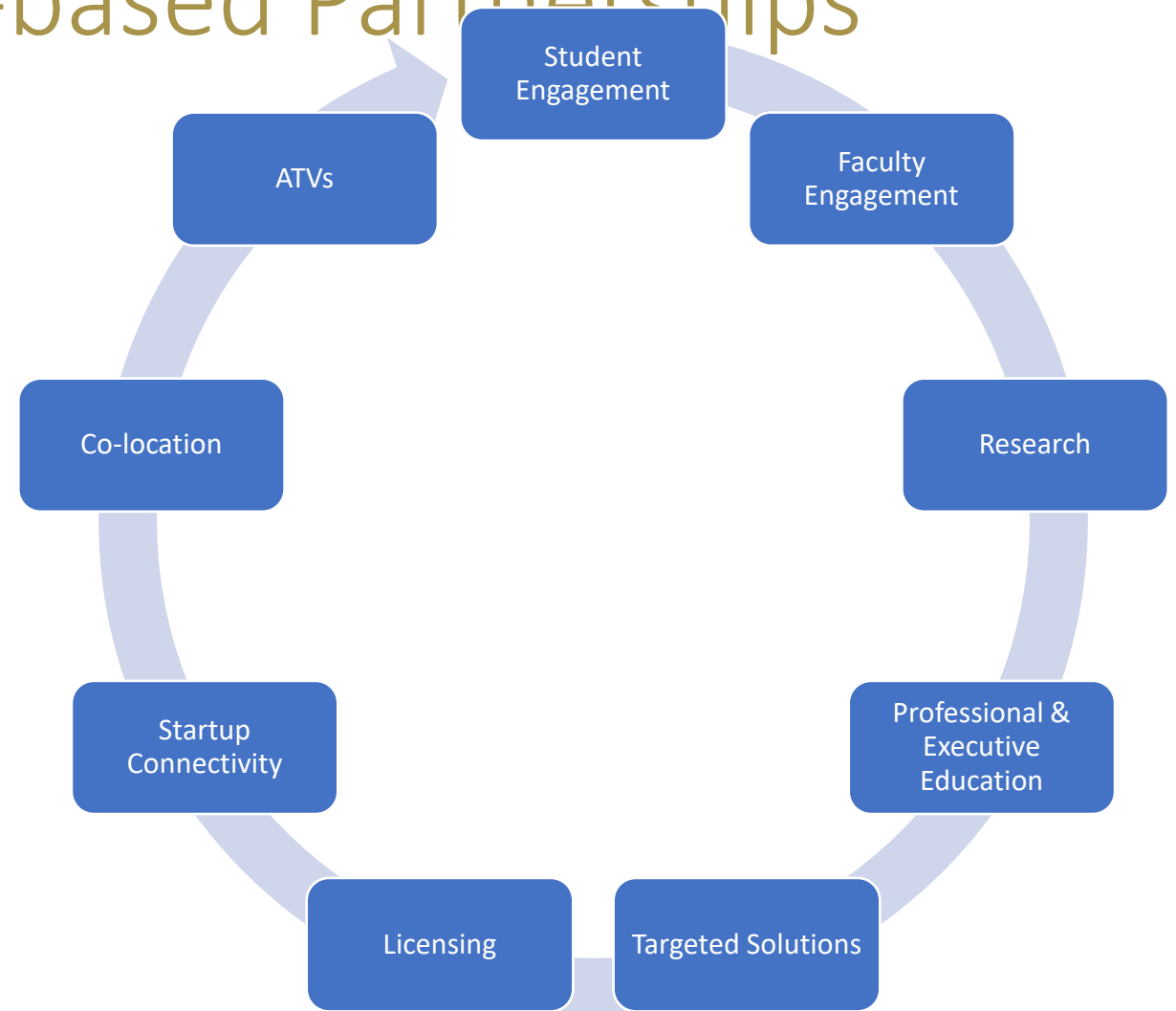
Large partnerships that can broaden might not start with gifts or research.

- Executive/professional/customized education programming can form new relationships.
- Faculty and corporate representatives develop bonds for future connections.



Novel Models: Broad-based Partnerships

- Create a centralized “front door” for industry.
- Expand the vision of success.
 - Partnerships are stronger when they are broader – with multiple roots in our campuses.
- Broaden the metrics of success for industry-facing staff.
 - Not just sponsored research or gifts, but all corporate revenue.
 - Incentivize behavior for the right outcome – not the wrong deal.
- “Upsell.”
 - Continuously, but softly, present and listen for additional opportunities for engagement.



Novel Models: Co-location

 **Honeywell announced new robotics division to set up at 3 Crossings in the Strip - Pittsburgh Business Times**

Oct. 24th, 2019  Send to Kindle

Honeywell noted that the company collaborates with researchers at Carnegie Mellon's National Robotics Engineering Center, not far from its new office as the larger company continues to shift towards a greater focus on technology.

Close proximity can solidify partnerships.

- Can increase their investments in our faculty and students.
- Positive impact and creating jobs in our communities.

Novel Models: Startup Connectivity

reuters.com

Boeing invests in autonomous flight tech provider Near Earth Autonomy

Oct. 19th, 2017  Send to Kindle

By Reuters Staff

FILE PHOTO: The Boeing logo is seen at their headquarters in Chicago, April 24, 2013. REUTERS/Jim Young/File Photo

(Reuters) - Boeing Co said on Thursday it invested in Near Earth Autonomy, a Pittsburgh-based firm that develops technologies enabling autonomous flight such as drones.

In addition to the undisclosed investment, Boeing said the two companies will also explore products and applications for emerging markets such as urban mobility.

It was the first investment in autonomous technologies by Boeing's venture capital arm, Boeing HorizonX, since it was established in April of this year, Boeing said.

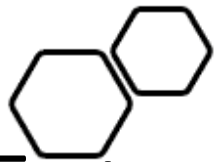
Near Earth Autonomy, a spin-off from the Carnegie Mellon University's Robotics Institute, develops technologies including sensor suites, three dimensional mapping and survey, and collision detection and avoidance that enables aircraft to operate autonomously.

- Recognize the importance of university startups to our corporate partners.
- Investments in our startups are investments in our communities.
- Lead to lower-TRL research.
- Increases engagement with faculty and students.

Challenges: Technology Readiness

- Industry is increasingly relying on universities to become more “market ready” partners.
- Examples of attributes that define market readiness include technology readiness for technologies, field tests and associated liability coverage, etc.
- Typical university labs are not equipped to handle these demands for market readiness.
- There is a need for a broad-based solution to the problem – how can universities create an infrastructure to do more market-ready development as off-shoots from their research?



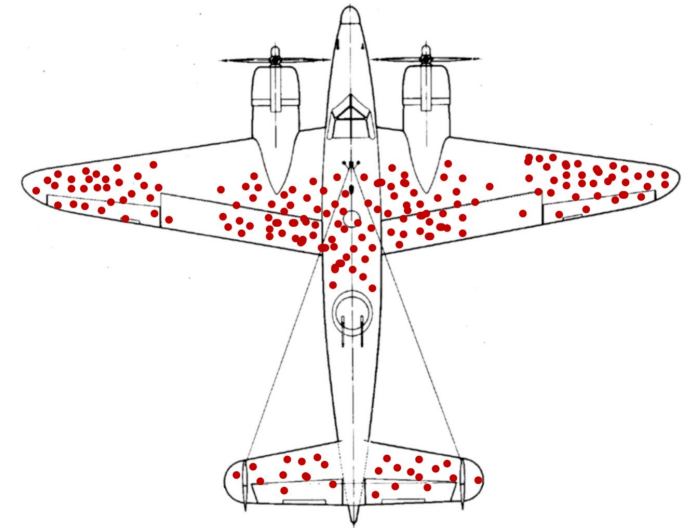
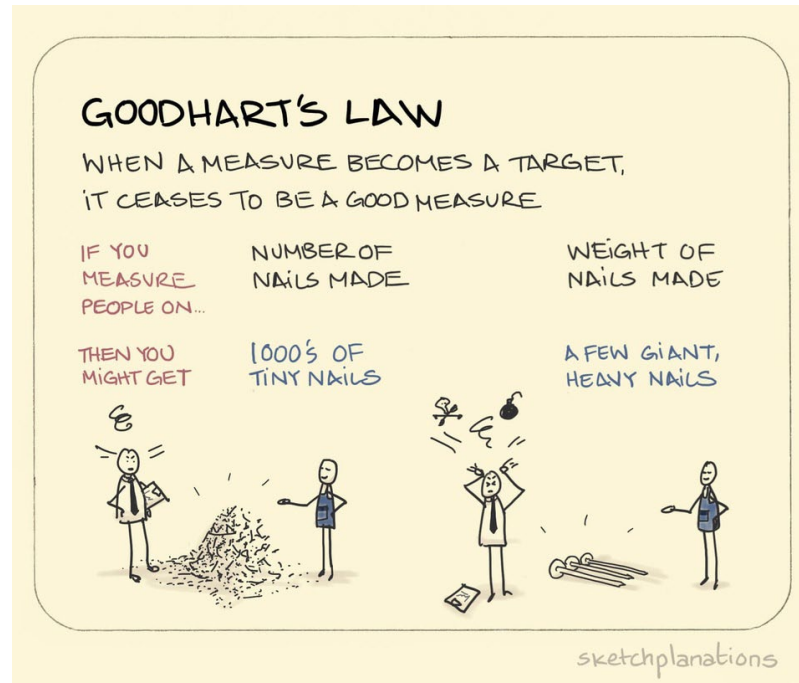


Future Challenges to Research Enterprise

- Be strategic yet agile.
- Pandemic-pressure on commercial real estate.
- Inequality vs Inclusive Innovation.

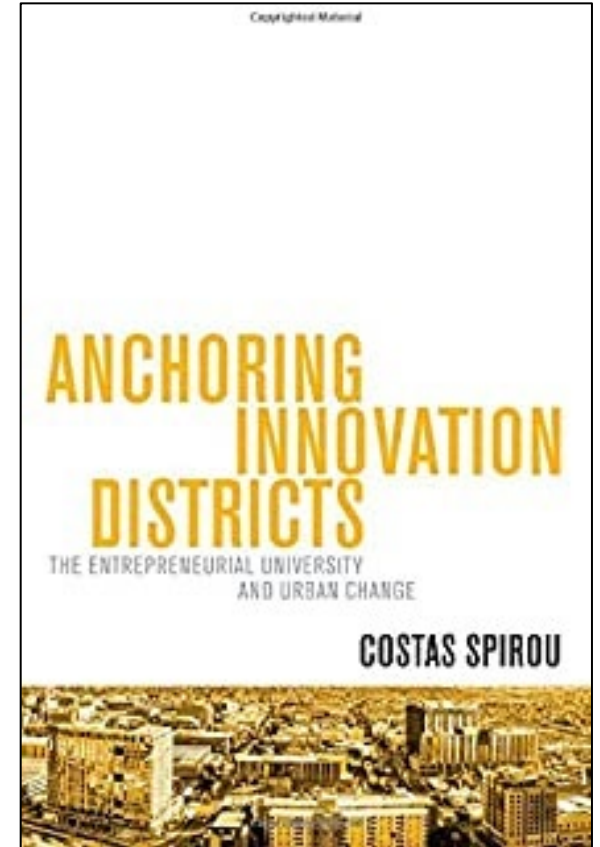
Parting Thoughts....

- Universities are the de-facto economic engines and change makers.
- Your research enterprises are the de-facto leaders and actors in those endeavors.
- Make it easier for partners to find you and work with you.
- Information in this presentation is based on the experience of Georgia Tech, a technical university in an urban campus with Fortune 500 companies.
- Reward what you claim matters!



References

1. Spirou, Costas. *Anchoring Innovation Districts: The Entrepreneurial University and Urban Change*. Baltimore: Johns Hopkins University Press, 2021.
2. University Industry Demonstration Partnership (UIDP) uidp.org
3. Hickman, Carla. “10 Trends to Guide University Leaders in Growing Industry Partnerships.” EAB article link: <https://eab.com/insights/infographic/university-research/10-trends-guide-university-leaders-growing-industry-partnerships/>
4. Work of Randolph Hall, Dean’s Professor and director of the CREATE Center at the University of Southern California. Bio: <https://viterbi.usc.edu/directory/faculty/Hall/Randolph>



Case Study 1: Local Economic Development

A small STEM-focused public university is located about a mile from a vibrant downtown of the second largest (and fastest growing city) in a mostly rural state. The area between the university and the downtown is mostly a blighted urban area. As the city continues to grow, what is the role of the university in that growth? How should the university participate in the city's growth and the opportunity to address the urban blight that separates the campus from the vibrant downtown?

Case Study 2: Workforce Development

This same STEM-focused university has an excellent track record of placing its graduates in careers in their field of study. However, most graduates leave for jobs outside the state. Should this “brain drain” be a concern to upper administration? How does workforce development fit into an institution’s role in economic development?

Case Study 3: Entrepreneurship & Innovation

The university has an incubator on campus. The incubator is owned and run by a separate non-profit. This incubator is full and additional space is needed. In addition, entrepreneurial training and support within the incubator is lacking. What role does the university have in supporting innovation and entrepreneurship? Should the university look to support the efforts of the nonprofit, or take a more active role in developing facilities and programs to foster innovation on entrepreneurship?