Strengthening
University-Industry
Partnerships

The Changing Geography of Transdisciplinary Research

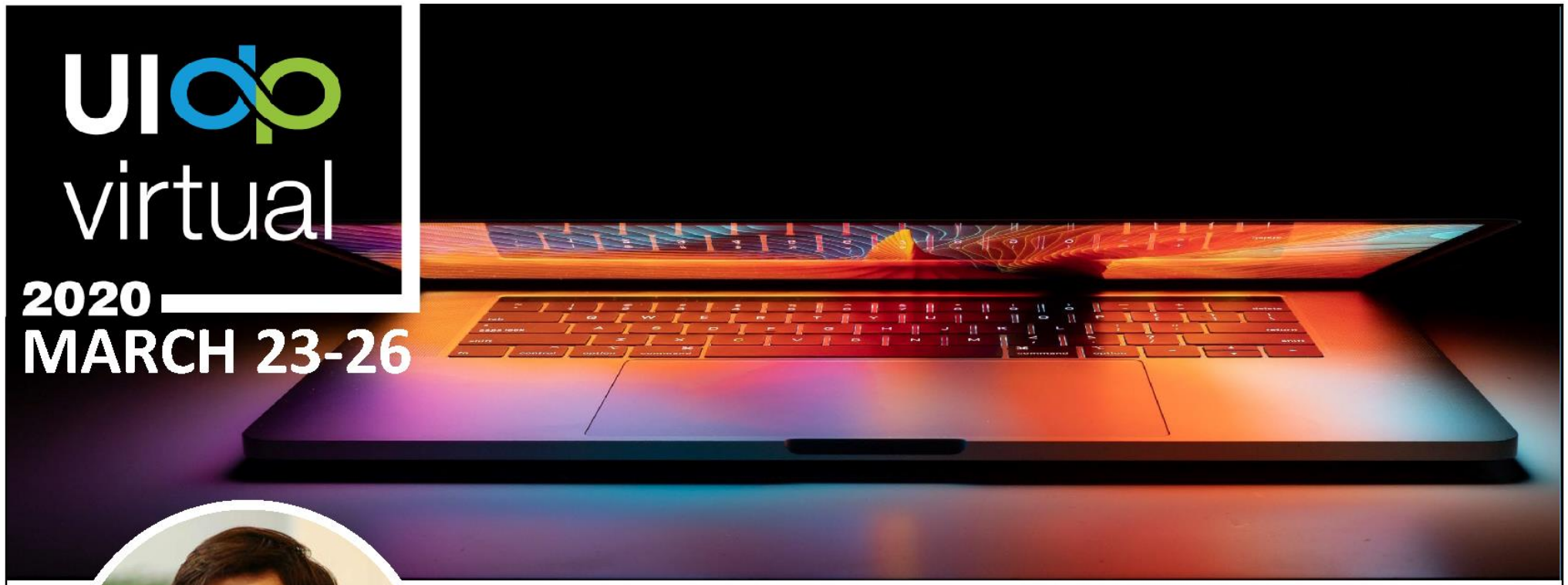
UIDPVirtual 2020

Chris Lambert, CannonDesign

March 26, 2020

UIDP virtual

2020 MARCH 23-26



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The Changing Geography of Transdisciplinary Research

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What We'll Cover Today

1 Geographic Influences

2 External Geography (Location Strategy)

3 Internal Geography (Work Environment Strategy)

4 What Could it Mean?

Geographic Influences

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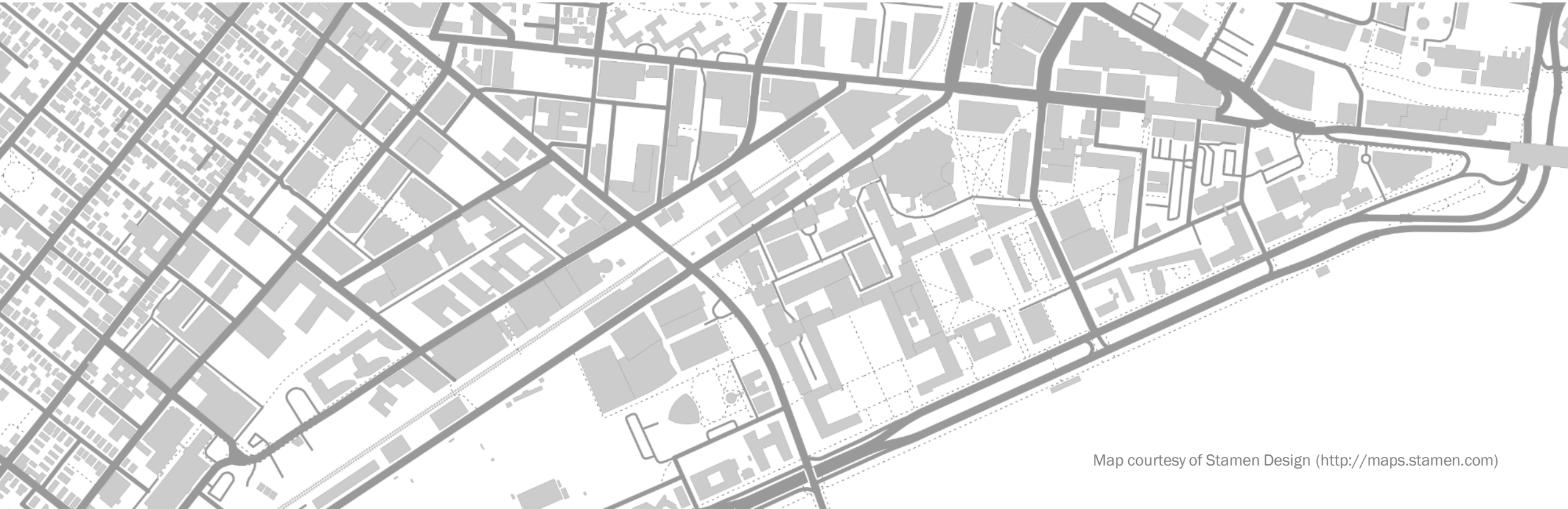


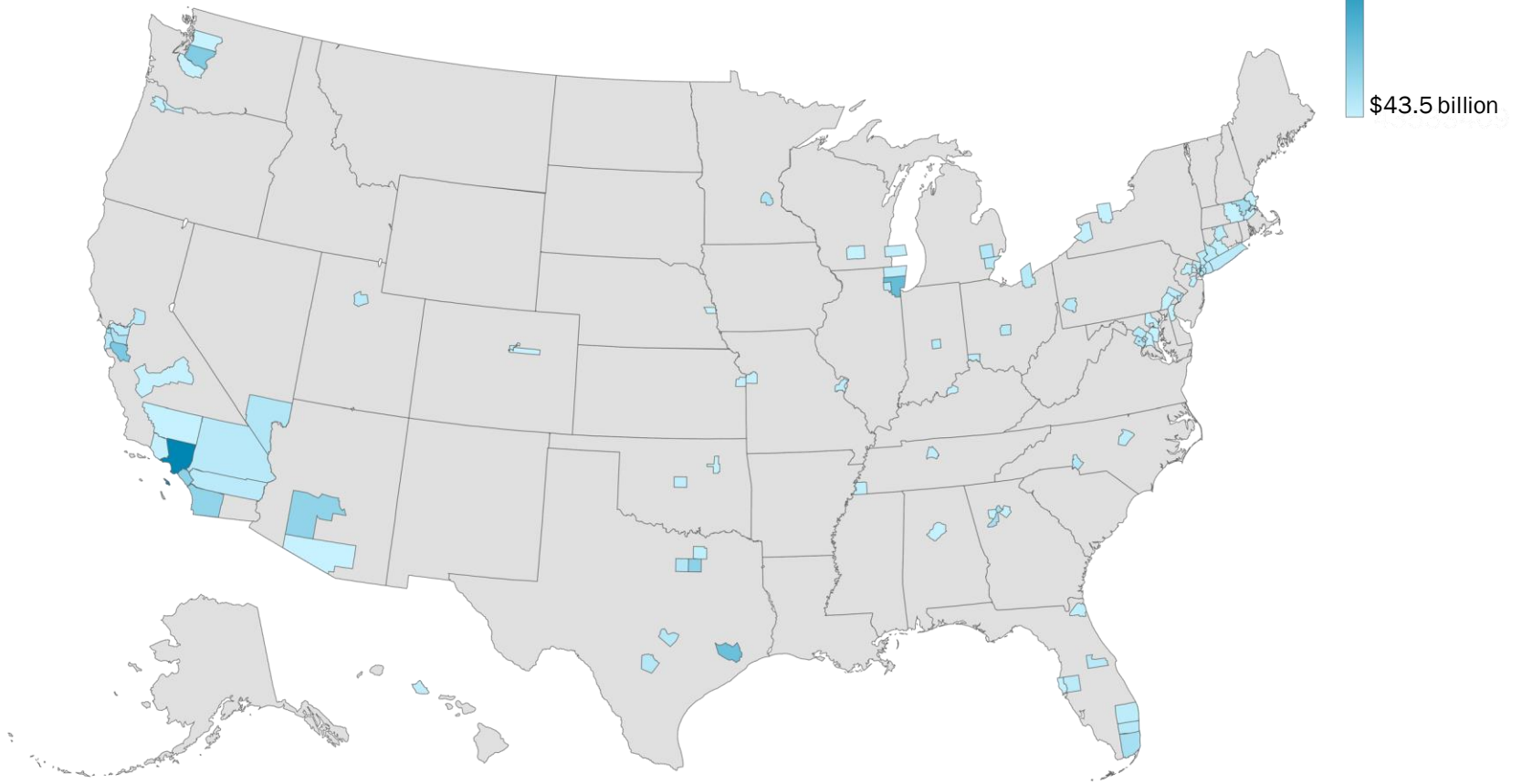
Map courtesy of Stamen Design (http://maps.stamen.com)

Major metropolitan areas continue to drive the U.S. economy.

Economic activity continues to consolidate geographically.

- The top 100 (3%) counties generate 60% of the U.S. GDP
- Alone, the top 10 (0.3%) generate more than 20%

TOP 100 U.S. COUNTIES IN GDP (2018)

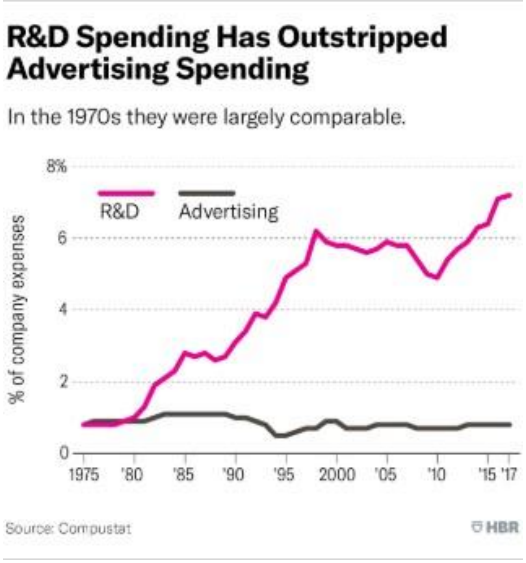


Source: U.S. Bureau of Economic Analysis, "Gross domestic product (GDP) by county. All Industries," (accessed March 23, 2020).

Commercial headquarters concentrate in high economic productivity locations and increasingly invest in R&D.

- The highest revenue corporate HQs cluster in high-GDP metros
- Over 40 years, R&D spending across industries has grown 7x (HBR 2019)

DISTRIBUTION OF HEADQUARTERS LOCATIONS (BY COUNTY) FOR TOP 500 U.S. COMPANIES IN REVENUE (2019)

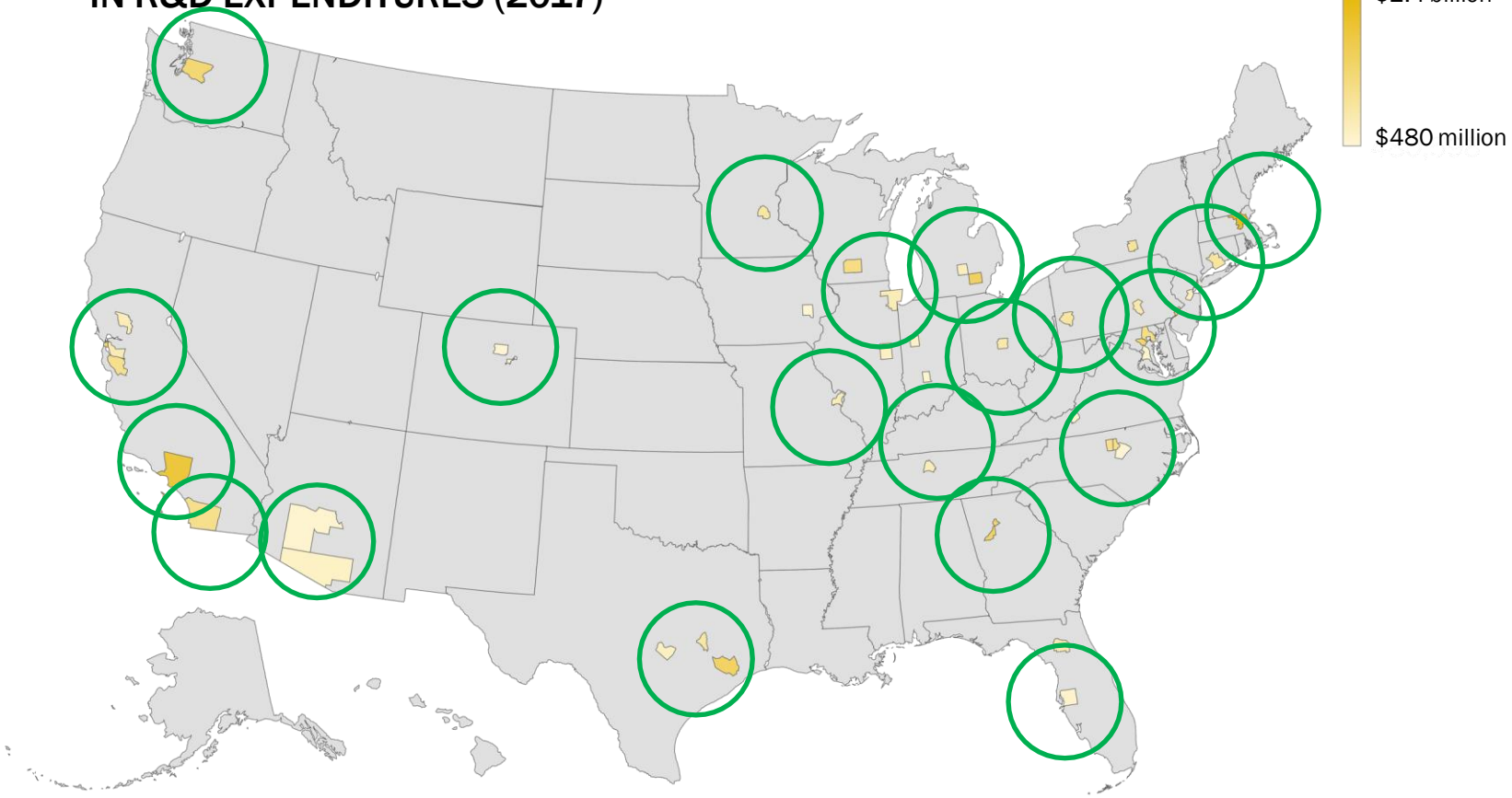


Source: Fortune Magazine, “Fortune 500 by headquarters location,” (accessed March 23, 2020).

Academic R&D spending tracks tightly with major metros.

- R1 research universities and academic medical centers drive R&D spending.
- Twenty distinct county clusters overlap with broader economic trends

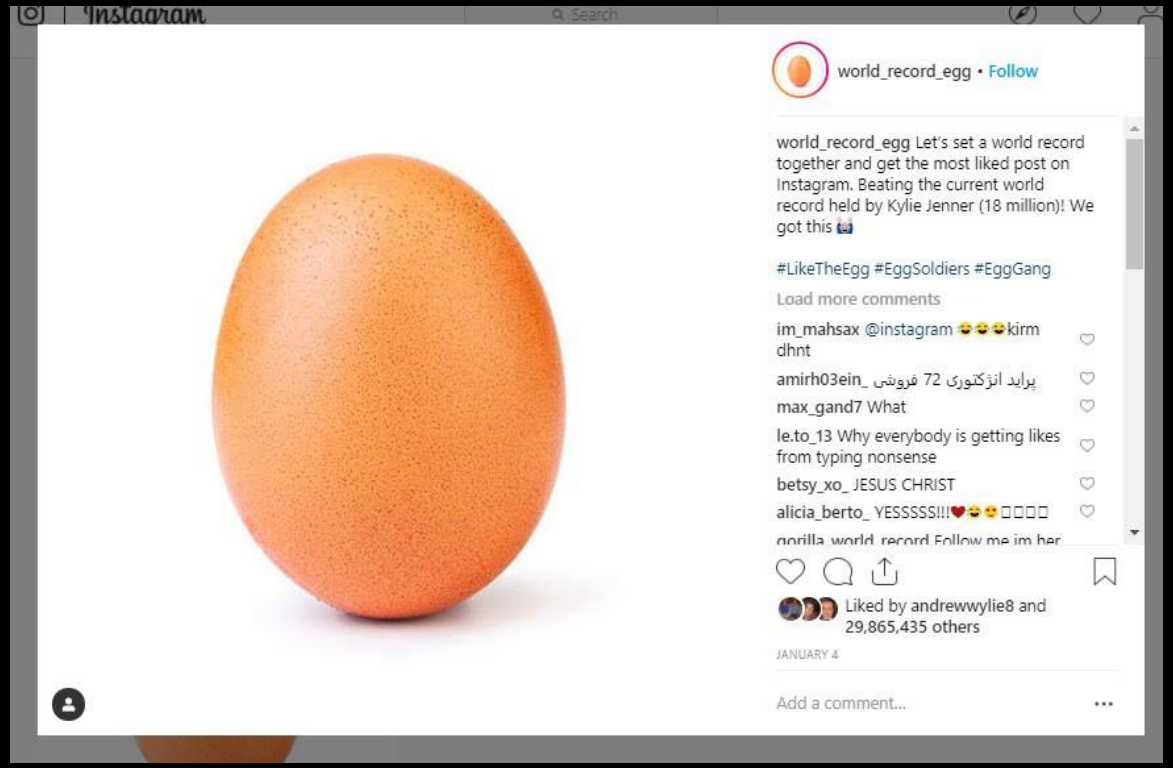
COUNTY LOCATIONS OF TOP 50 U.S. COLLEGES AND UNIVERSITIES IN R&D EXPENDITURES (2017)



Source: National Science Foundation, National Center for Science and Engineering Statistics, Higher Education R&D Survey (accessed March 23, 2020).

Does academic R&D spending help drive regional economic productivity? (Or vice versa?)

AUG 2019

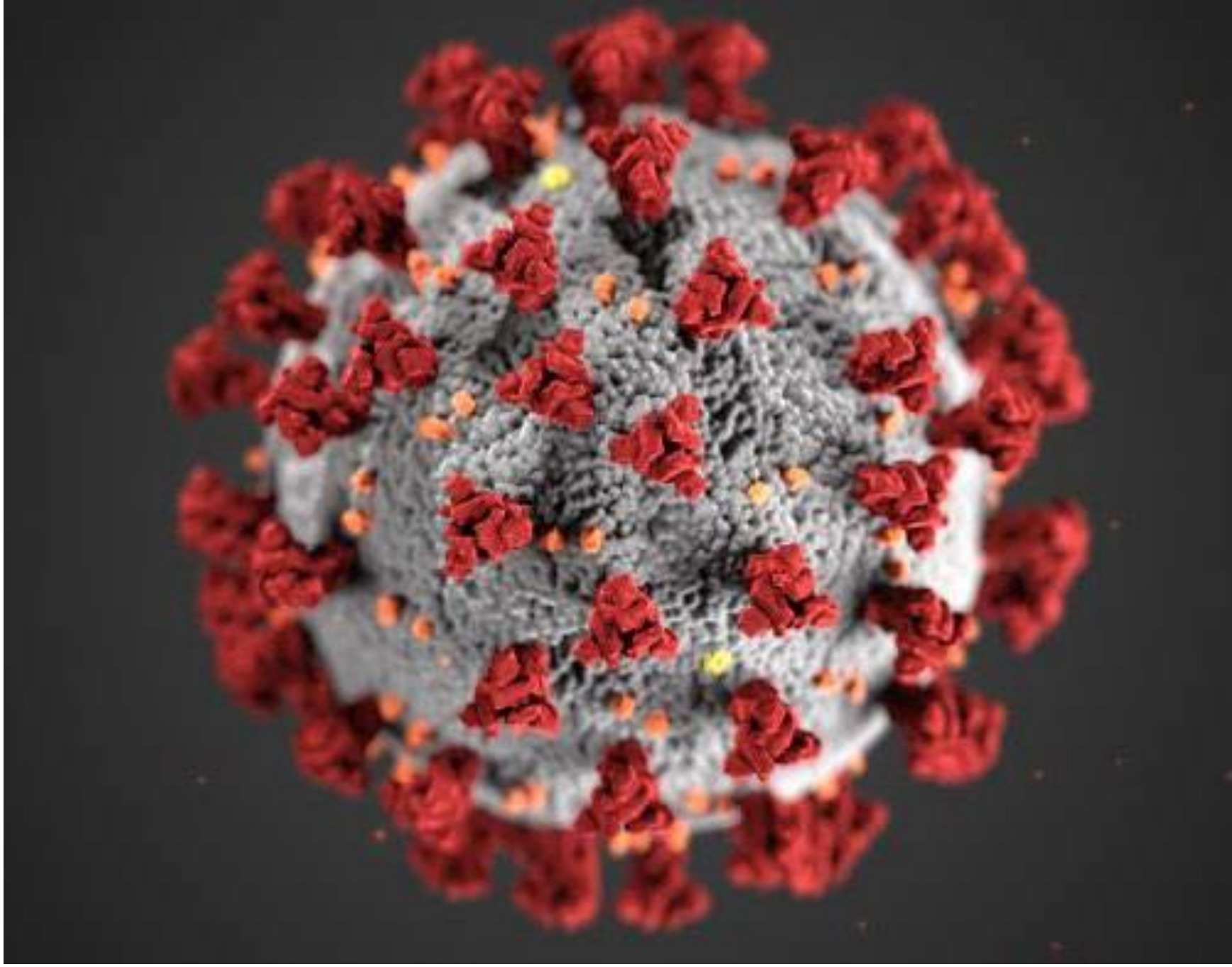


JAN 2019

Why these patterns matter

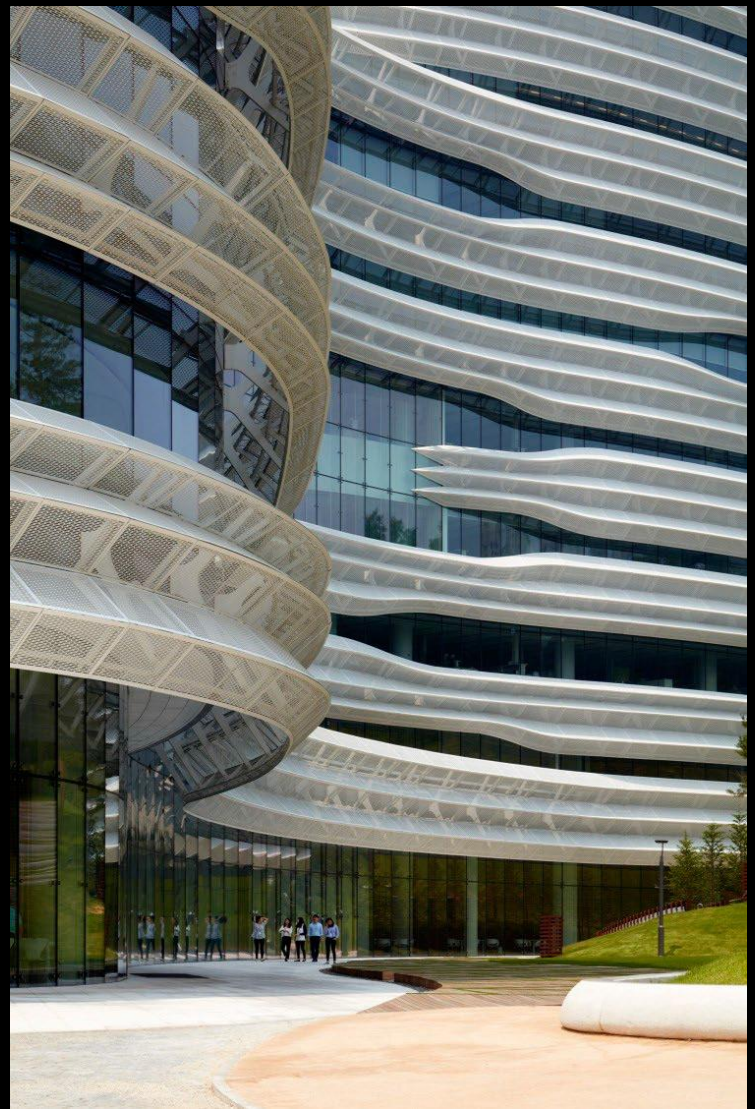
Over 30 years, organizations have charted a path **to work across disciplines to solve difficult problems:**

- Transdisciplinary Research
- Translational Health Sciences
- Team Science



Source: U.S. Centers for Disease Control and Prevention

The patterns of transdisciplinary science are realized in distinct external and internal geographies.



External Geography

(location strategy)

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After studying the geography of transdisciplinary science, we identified four themes:

1. Connections among anchor academic institutions and commercial interests matter... a lot.

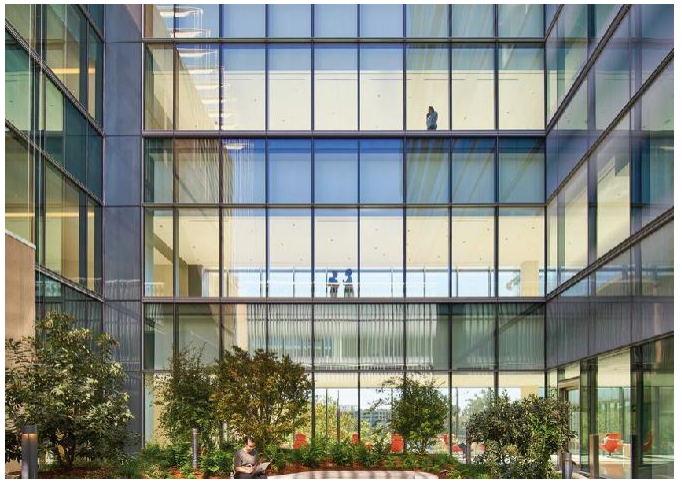
Cambridge, MA

In collaboration with Maya Lin Studio and Toshiko Mori Architect

2. Major R&D centers continue to attract scientific talent across disciplines.


San Diego, CA


UC SAN DIEGO JACOBS MEDICAL CENTER



3. Not all* major transdisciplinary R&D metros are highly urban.

*though urban patterns help

Howard County, MD


COFFEE

4. Non-coastal locations must trade on the strength of R&D anchors to continue to thrive.

In collaboration with Perkins + Will

Internal Geography

(work environment strategy)

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The changing nature of transdisciplinary environments illustrated in five key principles

1. Elasticity

2, Equitability

3. Adhocracy

4. Connectivity, Social

5. Connectivity, Remote

Key Principle: Elasticity

Flexible space is insufficient. To remain competitive, organizations are adopting more elastic ways to use space to account for rapid internal and external changes.


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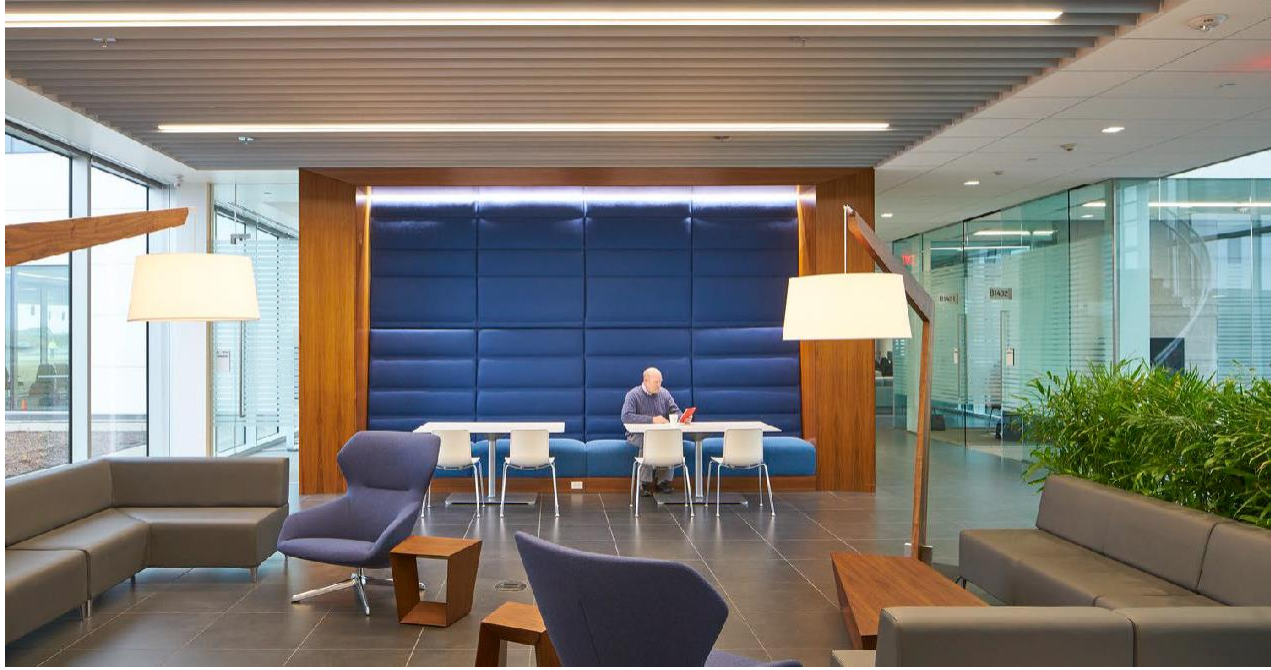

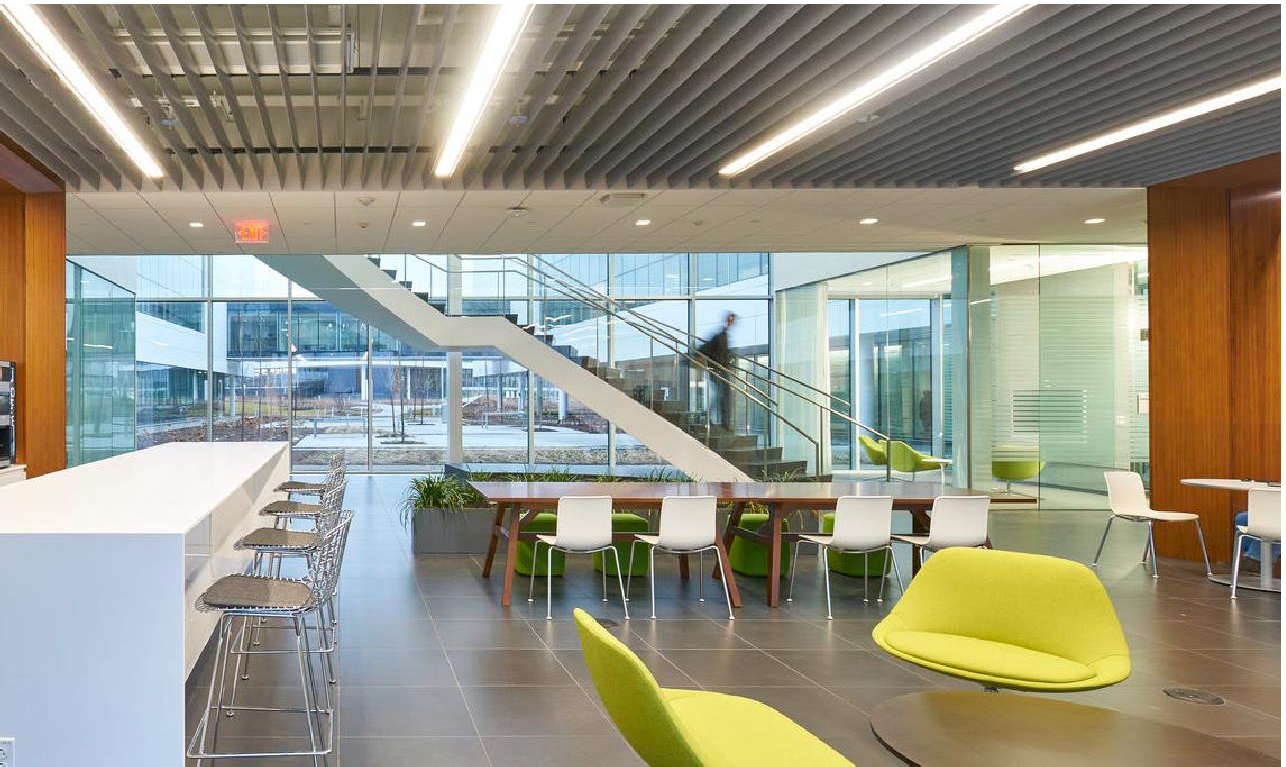

Key Principle: Equitability

Engaging researchers in the planning of their environment can help build a sense of equitability and broader long-term buy-in about its operation.


EXIT

Key Principle: Adhocracy

At its heart, research is a deliberate process. To enable that rigorous work, it is critical to create space for impromptu interaction and displaying work in context.

Key Principle: Connectivity, Social

Enabling teams at all levels to socialize continues to be a priority for generating research across disciplines. Creating spaces to connect should be supported by an operating model that offers relevant programming.


COFFEE
COFFEE
COFFEE
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COFFEE

Key Principle: Connectivity, Remote

As disciplines become more specialized and projects more complex, the physical environment increasingly needs to account for virtual participants.

What Could it Mean?

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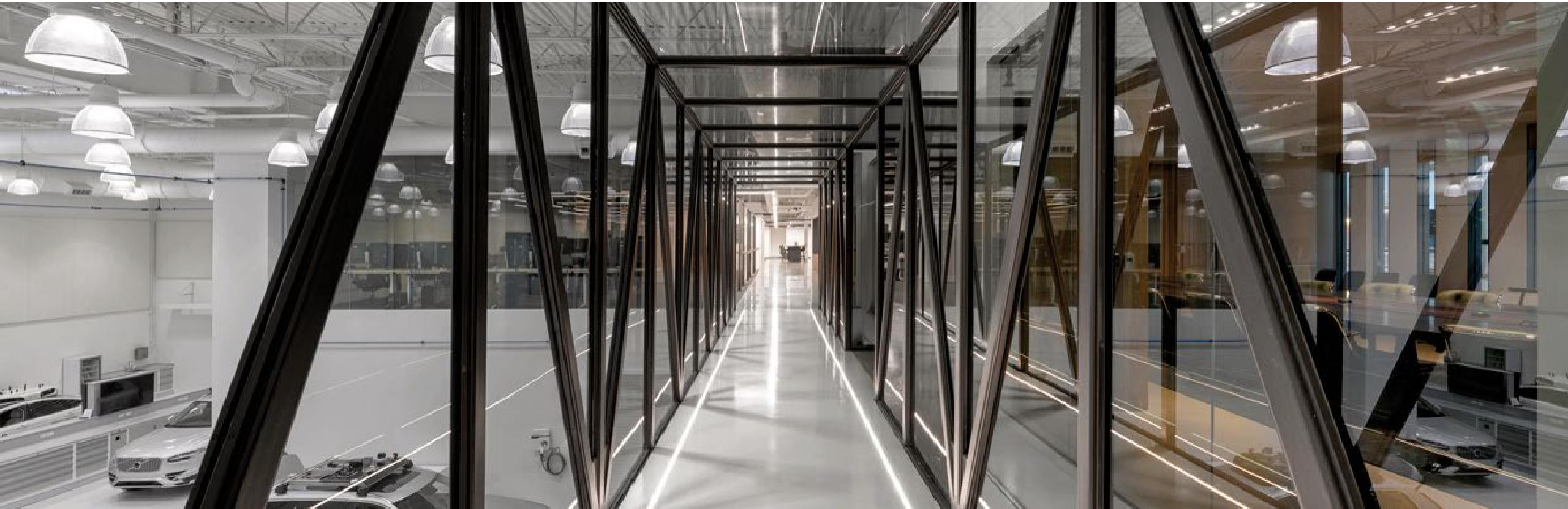

Will the patterns of concentrated R&D persist? Or will a more fragmented pattern emerge?

Will academic and commercial interests share equally in the costs and benefits of R&D investment?

What kinds of research roles will continue to grow?

As R&D investment increasingly crosses academic, clinical and commercial interests, new hybrid spatial geographies will emerge.

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Member Webinar

WEDNESDAY, APRIL 8, 2020

12 to 1 p.m. EDT

Jim Bray
Northwestern University
Moderator

UIDP Strengthening University-Industry Partnerships

How Companies Approach Academic Research Engagement in these Disruptive Times

Join us to learn how our industry members, in diverse sectors, are evaluating and reframing their current approaches to academic collaborations.

Panelists

Gaylene Anderson
Boehringer Ingelheim Pharmaceuticals, Inc

Kent Foster
Microsoft

Austin Kozman
PepsiCo