UW Board of Trustees Research and Economic Development Committee
Agenda
March 26, 2025, at 1:30 – 3:00 pm

Public Session:

Agenda #	Description	Page #
1.	**Research Excellence Presentation:** AI Seed Grant Recipients – Peter Walker, Melissa Morris– *"Handwritten Text Recognition: Using AI to make 18th-Century Missionary Records Publicly Accessible"* **Diksha Shukla** – "*Enhancing Rural Resilience through Adaptive Learning Systems Powered by Neuro-Symbolic AI Models."* **Zoe Kriegel, Diksha Shukla** – "*Tracking Facial Movements Using AI for Rural Telehealth Speech Therapy."* **Dane Taylor** – "*Migration Connectivity Analysis and Design with Topology and AI."* **Ben Koger** – *"Statewide AI-Driven Pronghorn Monitoring."*	 *4* 10 23 27 32
2.	**Research Park planning update** Arundeep Pradhan	41
3.	**REDD Updates** Arundeep Pradhan	

REDC
COMMITTEE MEETING MATERIALS

AGENDA ITEM TITLE: **AI Seed Grant Presentations –** Koger, Shukla, Kriegel, Taylor, Walker, Morris

☒ OPEN SESSION
☐ CLOSED SESSION

PREVIOUSLY DISCUSSED BY COMMITTEE:
☐ Yes
☒ No

FOR FULL BOARD CONSIDERATION:
☐ Yes *[Note: If yes, materials will also be included in the full UW Board of Trustee report.]*
☒ No

☐ *Attachments/materials are provided in advance of the meeting.*

EXECUTIVE SUMMARY:

Title of the presentation: Statewide AI driven pronghorn monitoring
PI: Benjamin Koger
Department and Department Head name: School of Computing (Dr. Gabrielle Allen) and Zoology and Physiology (Dr. Amy Navratil)
Brief Summary: Designing AI powered pronghorn monitoring tools in collaboration with Wyoming Game and Fish for use in the state and across the American West.

Title: Enhancing Rural Resilience through Adaptive Learning Systems Powered by Neuro-Symbolic AI Models
Principle Investigator: Diksha Shukla
Department: Department of Electrical Engineering and Computer Science
Department Head: Ian Walker, Ph.D.
Brief Summary: Rural communities face unique challenges in education, resource management, and community development. Traditional AI models often struggle to adapt to these dynamic environments, limiting their effectiveness in real-world decision-making. This project aims to develop adaptive learning systems using neuro-symbolic AI, combining deep learning with logical reasoning for more trustworthy, explainable, and context-aware AI solutions. By improving decision-making in areas like personalized education, reasoning, and resource optimization, this research empowers rural communities with AI-driven solutions to enhance sustainability and resilience. The outcomes will lay the groundwork for future large-scale solutions that support rural growth and adaptability.

Title: Tracking Facial Movements using Artificial Intelligence for Rural Telehealth Speech Therapy
PI(s): Zoe Kriegel, Diksha Shukla
Departments and Chairs:
Division of Communication Disorders, Division Chair Mark Guiberson, Ph.D.
Department of Electrical Engineering and Computer Science, Department Head Ian Walker, Ph.D.
Brief Summary
Between 70-90% of individuals living with Parkinson disease will experience degeneration in their ability to speak. Speech language pathologists provide critical preventative and rehabilitative therapy to prolong their ability to communicate. Clinical measurements of motor speech disorders are primarily made using clinical judgements with accuracy that depends on clinical experience. The study will combine interdisciplinary expertise in neurodegenerative disorders and speech therapy (Dr. Zoe Kriegel, PI) with artificial intelligence and biometrics (Dr. Diksha Shukla, Co-PI) and human biomechanics (Dr. Adam Fullenkamp; External Consultant) to develop easy-to-access telehealth measures of speech. The project will use a data-driven approach to examine the use of artificial intelligence to accurately measure facial movements during speech using widely accessible, consumer-grade camera video data.

Title: Migration connectivity analysis and design with topology and AI
PI: Dane Taylor
Department and Department Head name: School of Computing, Gabrielle Allen
Brief Summary: Connectivity networks are widely used to model animal movements across landscapes. We propose to study such networks using mathematical techniques from topology, the mathematical subfield that studies shape. This toolset is commonly called topological data analysis (TDA). Applying TDA, we will investigate how migration pathways are enhanced by the removal of fences (or their replacement with virtual fences). Additionally, we will develop AI algorithms based on TDA to identify which fence removals best enhance migration resilience.

Title: Handwritten Text Recognition: Using AI to make 18th-Century Missionary Records Publicly Accessible
PI(S): Peter Walker, Melissa Morris
Department: History
Brief Summary: Exploring the use of AI to transcribe ancient manuscripts.

PRIOR RELATED COMMITTEE DISCUSSIONS/ACTIONS:
Information only

WHY THIS ITEM IS BEFORE THE COMMITTEE: Information Only

ACTION REQUIRED AT THIS COMMITTEE MEETING: None

PROPOSED MOTION: N/A

Research and Economic Development
COMMITTEE MEETING MATERIALS

AGENDA ITEM TITLE: AURP Report and Research Park update - Pradhan

☒ OPEN SESSION
☐ CLOSED SESSION

PREVIOUSLY DISCUSSED BY COMMITTEE:
- ☒ Yes
- ☐ No

FOR FULL BOARD CONSIDERATION:
- ☐ Yes *[Note: If yes, materials will also be included in the full UW Board of Trustee report.]*
- ☒ No

☐ *Attachments/materials are provided in advance of the meeting.*

EXECUTIVE SUMMARY:
The Research and Economic Development Division began exploring the option of developing a plan for the expansion of Cirrus Sky Technology Park as a joint effort led by the Laramie Chamber Business Alliance (LCBA) and the University of Wyoming. The first step in this effort was to engage the Special Projects Team from the Association of University Related Research Parks (AURP) to meet with UW and LCBA stakeholders. The AURP team visited Laramie on October 14-15, 2024 to meet with the stakeholders. As a result of those interactions, the AURP team provided the University with a Report on December 17, 2024 that highlights the potential of the Technology Park and outlines strategies to develop the Park and attract businesses as well as being a home to startup companies that are based on UW technologies. Strategies include:

- Branding and marketing
- Closer collaborative efforts with the city of Laramie and Albany County
- Developing a narrative
- Exploring federal opportunities
- Developing and cultivating investor groups (Angels, VCs, etc.)
- Focus on innovation-driven entrepreneurship
- Developing a strategy for public-private partnerships
- At this point REDD would like to discuss next steps and a timeline with input from all stakeholders

PRIOR RELATED COMMITTEE DISCUSSIONS/ACTIONS:
Presidential Fellow Charlie Zhang began investigating the possibility of development of a Research Park in May 2023
Presentation provided by Dr. Chitnis in November 2023 for preliminary discussion
Casual discussion of Research Park idea in May 2024 regarding contracting AURP review team
Discussed review and pending report in November 2024
AURP report received and is attached.

WHY THIS ITEM IS BEFORE THE COMMITTEE:
Update and report presentation, discussion for next steps and timeline.

ACTION REQUIRED AT THIS COMMITTEE MEETING:
None

PROPOSED MOTION:
N/A

REPORT: AURP Special Project- Team Visit

October 14-15, 2024

CREATING COMMUNITIES OF INNOVATION

a special project of AURP

University of Wyoming | Laramie, Wyoming

Introduction:

AURP was asked by the University of Wyoming to host an AURP Special Project Team to conduct a site visit with the University's innovation and research executives, campus, and community leadership. The mission was to discuss options and vision for the University of Wyoming to become a stronger, more engaged leader in Wyoming and the region in applied research, engagement, and academic-industry partnerships utilizing place-based strategies, including consideration of expanded incubator and research park development.

AURP Participants:

Vickie Palmer, CEO, AURP
Brian Darmody, Past President, AURP; Chief Strategy Officer, AURP
Erin Koshut, President, AURP; Executive Director, Cummings Research Park, Huntsville, AL
Kate Engel, Executive Director, Nebraska Innovation Campus, University of Nebraska, Lincoln, NE
Alison Doyle, Associate Director, Iowa State University Research Park, Iowa State University, Ames, IA

Acknowledgements:

AURP thanks the following individuals and organizations for their participation during this review process:

- President Ed Seidel, University of Wyoming
- Parag Chitnis, VP Research and Economic Development Division, University of Wyoming
- Arun Pradhan, Deputy Vice President for Research & Innovation, University of Wyoming
- Brad Enzi, President and CEO, Laramie Chamber of Commerce
- Josie Voight, Assistant Director, IMPACT 307
- Jill Higham, VP, UW Foundation
- Angela Ver Ploeg, Senior Director of Corporate Engagement, University of Wyoming
- Tara Evans, VP and General Counsel, University of Wyoming
- Alex Kean, VP for Budget and Finance; Mike Smith, VP Governmental Affairs, University of Wyoming
- Charlie Zhang, Associate Professor of Civil and Architectural Engineering - Construction Management, University of Wyoming and Srishti Hada, Graduate Research and Teaching Assistant, Civil and Architectural Engineering - Construction Management, University of Wyoming
- Josh Dorrell, CEO, Jill Tregemba, Agribusiness Development Manager, and Taylor Vignaroli, Entrepreneur Development Manager, Wyoming Business Council
- Didier Lesueur, CEO, Western Research Institute
- And the many others that attended throughout the day

Summary:

A leadership team of AURP and research park member executives gathered for an on-site meeting at the University of Wyoming in Laramie on Oct. 14-15, 2024 to discuss the role of the University of Wyoming in developing further an associated research park plus expanded facilities for incubation and connection to industry and the community. *See appendix 1 for the site visit agenda.*

The AURP Special Project's Team was extremely impressed by the University of Wyoming representatives, the city of Laramie, and the genuine warmth and participation felt from meetings with university and community members. We believe the University of Wyoming and the region has a bright future if it properly leverages internal, city, county, state, and federal opportunities, and builds upon the foundation that the nascent research park and incubation activities exhibit so far. We want to especially thank Arundeep Pradhan, Deputy Vice President for Research and Innovation, for his role in guiding the AURP team in the site visit and acting as point of contact with the University of Wyoming.

With the demonstrated interest of President Seidel and his leadership team, by way of their active participation in our sessions, we are optimistic that improvements can be made in both university research park connections, but challenges remain to fully realize the opportunity for a robust innovation campus at either Cirrus Sky Technology Park or at Wyoming Technology Business Center (WTBC).

The team discussed the challenges faced by the community in their efforts to move forward. Wyoming faces significant obstacles in its aligning of stakeholders, integrating the university within the community and developing a cohesive strategy for a research park. There are some positive building blocks in place, but fundamental issues need to be addressed.

Animated discussion involved the current SWOT analysis of the University and community.
See appendix 2 for full SWOT analysis outcomes.

The AURP team emphasized the importance of including the city council and chamber in their plans, as it is crucial for the success of a more developed park.

Branding and Marketing of the University of Wyoming and Research Parks:

Research park connectivity to its sponsoring university is crucial in positioning a university research park from other real estate investments. Currently, neither the Wyoming Technology Business Center nor Cirrus Sky Technology Park brands nor titles indicate such a relationship to the University of Wyoming. Prospective tenants may want to know that these parks are related to the University especially given access of programming, skilled workforce, and services available, so incorporating the UW name and/or logo into the Park's branding must be developed.

Both parcels might be branded as University of Wyoming Innovation District or Wyoming Innovation Corridor as a cohesive outreach marketing strategy as both parcels are developed in the future.

Additionally, note that Cirrus Sky Technology Park does not appear on the list of available sites on the Wyoming Business Council website nor does the Wyoming Tech Business Center. The Cirrus Sky Technology Park has an anonymous receptionist as contact to request additional information by prospective tenants. Accordingly, if University of Wyoming proceeds on either project it needs to ensure a comprehensive branding and outreach strategy encompassing all parties in the region.
https://wyomingbusiness.org/why-wyoming/available-properties/

Compelling Marketing Program in Consultation with City of Laramie and County of Albany:

Such a campaign driving messages on the business opportunities available in conjunction with the University of Wyoming and its research parks would educate potential investors and partners outside of Laramie to understand the potential of this innovation ecosystem, including case statements, outreach and awareness building in core areas such as ag tech, data systems and others. Many non-major metro areas, such as Chattanooga, Ashville, Coeur d'Alene, and Albuquerque, have developed national marketing campaigns for small tech hubs locations.

Both parks need to develop a better 'sense of place' with the surrounding community. Research has shown the most important factor in employees' and tenants' interest in returning to the office is the collaborative sense of community unavailable through remote working environments. University of Wyoming should provide these in-place resources through informal programs, retail amenities and established annual programming that can link the prospective parks to the broader University of Wyoming community.

Seek Opportunities to Tell the 'Story' (*narrative)* of University of Wyoming and Laramie in Regional/National Business Press and at VC/Angel National Conferences:

The University of Wyoming should enhance its road show at tech transfer and VC events to demonstrate the amenities and opportunities for companies to establish locations in Laramie and partnering with the University. Additionally, using university connections with the chamber and other community stakeholders, the sharing of announcements, programming, workforce opportunities and strategies and tenant company stories will increase the notable impact within the region while educating the community, region and nation of University activities.

Furthermore, creating regular touchpoints with companies and startups through surveys and other direct communications will enhance connections and build relations. To assist with management of these communications, a CRM such as Salesforce, is recommended.

Federal Opportunities:

In 2025, with the new U.S. Presidential Administration and Congress expected to provide an emphasis on energy technologies, manufacturing, rural/EPSCOR states and applied technology funding, Wyoming, the University of Wyoming and the region should strategize on how best to anticipate new federal funding opportunities, and the role incubators and research parks can play.

Take-aways from the recent EDA/NSF Roadmap Summit, which discussed the future of Tech Hub, Engines, and Build Back Better opportunities, included

1. There is a bipartisan interest in moving these and similar initiatives forward
2. Defense-related activities are high priority
3. Important to work community/technical colleges into economic development strategies to boost workforce and community development
4. Create more seamless pathways for industry to engage the University research and IP, as well as equipment
5. Consider using procurement and buying power to activate first customer opportunities for local/regional vendors and startups
6. There is a collective agreement that the heartland of America needs to be activated and invested in from an innovation standpoint
7. Funding will continue to go to MSA level markets that have figured out what is their competitive advantage

Furthermore, the National Defense Authorization Act passed in the U.S. Senate last week, providing new funding for EDA Tech Hubs.

OPPORTUNITY ZONES:
The federal Opportunity Zone (OZ) program (currently set to lapse in 2026) is expected to be renewed and enhanced to provide significant tax advantages in real estate development and funding for startup firms. Since the University of Wyoming campus and Cirrus Sky Technology Park are both situated in federally identified Opportunity Zones, attention should be paid to the expected renewal of OZs. The University and related stakeholders are encouraged to strategize a plan to broadcast these Opportunity Zones to prospective companies and funders nationally.

HISTORICALLY UNDERUTILIZED BUSINESS (HUB) ZONES:
Recruit HUB Zone federal contractors to Wyoming Technology Business Park and Cirrus Sky Technology Park.

The HUB Zone federal program provides a bid preference to federal contractors located in facilities residing within HUB Zones. This HUB Zone should also be identified as such given the University of Wyoming and Cirrus Sky are both situated within the HUB Zone. Furthermore, HUB Zone contractors can employ university students that live on-campus (40 hours a month) to assist them qualify for HUB Zone status.

Build new funding opportunities from the NSF CHIPS and Science Act, U.S. Department of Commerce, USDA, Small Business Administration, Department of Energy, and others. The CHIPS and Science Act authorizes billions of dollars in new funding for applied research, much of it directed to funding in the heartland in the U.S.

Furthermore, with the NSF Engines Colorado-Wyoming Climate Resilience Engine, the partnership and groundwork is established to accelerate startup growth in the area of climate resiliency. Through this active partnership with the Climate Resilience Startup Program and assistance offerings, this resource is a direct connection to possible tenants for the incubator and park communities. Leadership presence within the introductions and connections offered will place the University of Wyoming as lead advisor within this network and expand opportunities for engagement and advancement growing the branding and market place-making ecosystem especially with colleges of Agriculture, Life Sciences, and Natural Resources, Engineering and Physical Sciences, Environment and Natural Resources, Energy Resources.

Enhanced communications of these offerings, including those through partnership of Innosphere Ventures in Colorado, will accelerate and optimize opportunities to attract companies, talent, and university engagement.

Visit Research Parks in the Vicinity:

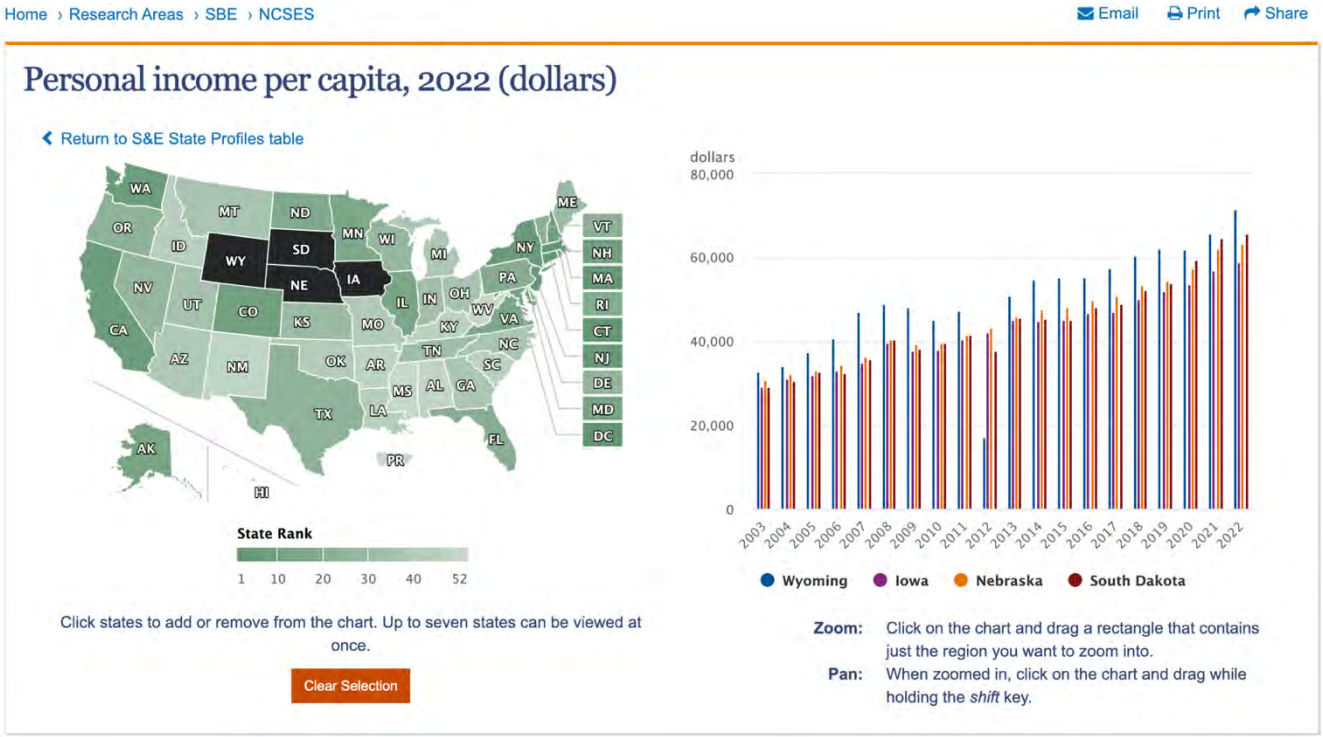
Beyond Wyoming Technology Business Center's similarities to the Iowa State University Research Park in Ames and Nebraska Innovation Campus in Lincoln, as discussed during the site visit, the North Dakota State University Research and Technology Park in Fargo is an additional campus location suggested to visit to explore how those parks relate to their respective universities and communities. The AURP team can provide additional site visit suggestions to similarly comparative communities.

Develop a Wyoming Angel Investor Network or Investor Group:

The creation of the Wyoming Angel Investor Network, possibly through the University's School of Business, with link to a new SSBCI program should be considered. "Cashed out" entrepreneurs that have retired to Wyoming continue to connect with angel investor groups. These experts should be tapped to volunteer as part-time executives for University of Wyoming startup firms to help connect angel investors to the University, even if they are not alumni.

Also, a University of Wyoming Angel Investor group, with outreach to these "cashed out" entrepreneurs, in places like Jackson Hole, may have interest in becoming angel investors or part-time CEO's for University of Wyoming

startups, again, even if not University of Wyoming alumni. This suggestion is especially key given NSF rankings as high per capita income levels within the State of Wyoming.



University of Wyoming I-Corps Great Plains Consortium and Wyoming Manufacturing Extension Partnership (MEP)

MEP's situated in each state across the U.S. will be receiving additional authorization from the CHIPS and Science Act plus additional funding through the Omnibus Appropriation Act and supplement. With this new funding, the University of Wyoming should make sure it has strong relationships with Impact MEP Wyoming/Manufacturing Works to advance manufacturing initiatives with the private sector on campus and to support possible tenants in the research parks. Participating within the CONNEX Wyoming platform and network will enhance new business opportunities for manufacturers and suppliers.

MIT REAP: Achieving Economic Growth Through Innovation-Driven Entrepreneurship

The MIT Regional Entrepreneurship Acceleration Program (MIT REAP) provides opportunities for communities around the world to engage with MIT in an evidence based, practical approach to strengthen innovation driven entrepreneurial (IDE) ecosystems. This MIT REAP program in offered through the MIT Sloan Office of Global Programs supported by the MIT Innovation Initiative, Martin Trust Center for MIT Entrepreneurship, and the Legatum Center for Entrepreneurship and Development www.reap.mit.edu.

MIT REAP is designed for high-level teams selected from regions dedicated to working alongside MIT faculty over a 2-year period to drive innovation-driven entrepreneurship in their city, region or country.
https://reap.mit.edu/assets/MITREAP_Overview_06052020.pdf

Creating Incentives for Faculty

Emphasizing the value of intellectual property and patents among University leadership establishes a sense of community and support of faculty. Moving away from individual college regulations and rules to a broader university-system tenure review would strengthen empowerment for job creation, business development, and company spinouts. Creating incentives for faculty would increase company startup generation.

Programming: Building Connections

As noted earlier, programming and creating a sense of place, builds the 'stickiness' of placemaking, creating a sense of belonging, which moves the research facilities beyond a real estate play. Additionally, involving the University of Wyoming Career Center to help train academically-oriented grad students to work with industry should be explored.

P3s and Workforce Housing for Graduates, Post Docs and Research Faculty:

Studies[1] show that many Wyoming graduates leave the state eventually. Although some may return eventually, there is a general outflow. To keep more University of Wyoming graduates in the state, consideration should be given to building graduate, post doc and research workforce housing as a P3 project adjacent to the University and research parks. There are federal and possible state and local programs to provide tax credits that may help subsidize this type of housing.

See appendix 9 - The New 'Town Gown' Partnerships, P3 Higher Education Summit, October 2021.

See appendix 10 - A Guide to Higher Ed Public-Private Partnerships.

See appendix 11 - The Association of Governing Board's Growing the Greater Campus: The Use of Institutionally Affiliated Real Estate Boards.

See appendix 12 - State of the P3 Higher Education Industry 2024.

Build Partnerships with Laramie Community College:

Partnerships with research universities and community colleges in workforce development and other topics are increasingly important, especially with the emphasis from NSF and EDA on comprehensive approaches to regional economic development.

Heartland Forward:

Establish and maintain connections with Heartland Forward, a regional economic development organization that supports innovative growth in states in the Great Plains, including Wyoming. As noted in their website, "A successful and vibrant heartland is one that attracts businesses, entrepreneurs and human capital all while maintaining a healthy workforce and quality of life. "
https://heartlandforward.org/

[1] State of Wyoming Statewide Longitudinal Education Data System (SLEDS) - https://wy-sleds.org/workforce-outcomes

Ross DeVol, President and CEO of Heartland Forward, spoke at the recent AURP International Conference in Bentonville, Arkansas, where University of Wyoming representatives were present.

As many commented from this program, the take-away from the experience at the city of Bentonville and prosperous Northwest Arkansas is the importance of corporate engagement within our research park and communities of innovation. These relationships take nurturing for greatest impact and resiliency.

Nuclear Engineering and Energy-related Fields:

Mining and resource extraction are likely to receive more emphasis with the new Presidential Administration and Congress. Rural and EPSCOR states are expected to be targeted to receive enhanced priority in federal research and development funding, even if overall levels are expected to diminish.

One consideration is a long term goal of the Small Modular Reactors (SMR) as a possible tenant at the Cirrus Sky Technology Park.
https://www.wyomingsites.com/statewy/community/Laramie-WY-/5645050

University of Wyoming and Nuclear Power | Idaho National Lab Frontiers Consortium:

The Idaho National Lab Frontiers Consortium is an important relationship as development of technologies supporting small modular nuclear reactors advances. The breadth of land available for piloting energy technologies on Cirrus Sky Technology Park makes it an attractive location for such activity and related advanced energy technologies, data storage and advanced manufacturing.

ACTIVITIES AND ACCOMPLISHMENTS BY THE NUMBERS

The Frontiers Consortium has been a driver in generating interest in advanced nuclear deployment. Through this, we have advised a growing number of business and policy leaders. They seek guidance, advice, information and strategic council on advanced nuclear energy applications, energy-based economic development strategies and strategic partnerships. In 2024, Frontiers provided **17 "Nuclear 101" and "Nuclear energy perspectives"** presentations for leaders in **Alaska, Idaho, Utah, Wyoming, Louisiana, Tennessee and Montana.** In addition, Frontiers hosted **10 tours** with state leaders, academia, industry and military officials at INL. The impact of these engagements have stregthen private sector partnerships and built state government's capabilities to leverage advanced nuclear energy for economic development.

https://inl.gov/content/uploads/2024/10/24-50871_Spangler__Digital_R2-1.pdf

State Small Business Capital Incentive (SSBCI) Allocation Focused on Equity/Venture:

The State of Wyoming has received $58.4M in federal SSBCI allocation. The Wyoming Smart Capital Network helps manage this fund and it is imperative that University of Wyoming and relevant stakeholders link to opportunities this fund can support by way of prospective tenants at University of Wyoming.
https://www.wyosmartcapital.org/dcn/wyssbci.nsf/pages/about.html

Equity/Venture Capital Programs	
State	Wyoming
Allocation (Millions of USD)	58.4

Development Recommendations:

The original purpose of the AURP Special Task Team was to provide recommendations on placement of the Park development given two possible physical locations. Following the onsite group discussions, information and opposing opinions shared, the purpose of our visit evolved.

With the strong support and direction provided by President Seidel, as advocate and visionary of prior successful research park communities, the Team's recommendation suggests that the University and community together and cohesively map out the narrative of desired corporate engagement and development. The region should further fostering a culture of innovation for meaningful alignment, breaking down silos, to leverage strengths of the community and state. Consider dynamic approaches to collectively impact the university, engaged business stakeholders, plus local, state and region students and potential workforce through a community-centered focus. To gain community buy-in, preparing letters of intent, bringing in trusted leaders, including even those that are not currently on board, for transparent discussions and decision-making, the community as a unit, can uplift the region to accelerate growth to a future focused ecosystem.

Once the university is considered a unifying and community-building foundation among the city and region, the Team suggested the further building and development of the Wyoming Technology Business Center especially given the current infrastructure in place. Likewise, with the high prospect of growth through the NSF Engines Colorado-Wyoming Climate Resilience Engine and expansive space readily available for development, the Cirrus Sky Technology Park could be marketed as suggested even simultaneously with the WTBC.

Conclusion:

The University of Wyoming demonstrates vision in exploring the use of facilities around its campus to build a robust innovation ecosystem. It has commissioned two comprehensive real estate reports exploring the use of the Wyoming Technology Business Center and Cirrus Sky Research Park, outlining both opportunities and challenges at each site.

In addition, the reuse of the Bureau of Mines building into a small wet lab space for start-up companies appears to be an relatively immediate step that would be easy from a logistics standpoint with minimal financial risk as the space could be used for academic uses, if the private sector did not utilize the lab space.

For the larger research parks campuses, the University of Wyoming is constrained somewhat by the unique tax structure of the state, lack of state population growth, overall research and development funding at the University and relative size of the city of Laramie.

Recent funding opportunities in energy, manufacturing, and federal real estate initiatives such as Opportunity Zones and others may provide development opportunities. Developing a strong business relationship with the Laramie Chamber of Commerce to share both a vision and risk for developing the Cirrus Sky Research Park is imperative.

We enjoyed the site visit and hope the AURP team observations and recommendations will advance the planning for the area around the campus into an innovation ecosystem supporting the goals of the University of Wyoming President and the University of Wyoming.

APPENDICES:

Appendix 1:

AURP Special Project Agenda | University of Wyoming

DAY 1: Monday, October 14th

5:30 Driving Tour through UW Campus and Cirrus Sky Technology Park

6:30 Social time and Dinner | Hosted by/with UWYO and City of Laramie Leaders

DAY 2: Tuesday, October 15th

Attending all day: *Arun Pradhan, Deputy Vice President for Research & Innovation, University of Wyoming, and Brad Enzi, President and CEO, Laramie Chamber of Commerce*

7:45 – 8:00 Coffee and Networking

8:00 – 8:10 **COMMUNITIES OF INNOVATION: AN OVERVIEW**
Vickie Palmer, CEO, AURP

8:10 – 9:00 **INCUBATION AND PROGRAMMING: THE START-UP PIPELINE**
Alison Doyle, Associate Director, Iowa State University Research Park
Josie Voight, Assistant Director, IMPACT 307

9:00 – 10:00 **REPORT OF FEASIBILITY STUDIES AND DRAFT PLANS**
Charlie Zhang, Associate Professor of Civil and Architectural Engineering - Construction Management, University of Wyoming
Srishti Hada, Graduate Research and Teaching Assistant, Civil and Architectural Engineering - Construction Management, University of Wyoming

10:00 – 11:00 **COMMUNITY ENGAGEMENT AND COMMUNICATIONS: SHARING YOUR STORY**
Kate Engel, Executive Director, Nebraska Innovation Campus
Brad Enzi, President and CEO, Laramie Chamber of Commerce

11:00 – 12:00 **COMMUNITIES OF INNOVATION AND STATE RELATIONS**
Brian Darmody, Past President, AURP; Chief Strategy Officer, AURP
Josh Dorrell, CEO, Wyoming Business Council
Jill Tregemba, Agribusiness Development Manager, Wyoming Business Council
Taylor Vignaroli, Entrepreneur Development Manager, Wyoming Business Council

12:00 – 1:00 **WORKING LUNCH: SWOT ANALYSIS**
Led by Arun Pradhan, Deputy Vice President for Research & Innovation, University of Wyoming
Brad Enzi, President and CEO, Laramie Chamber of Commerce

1:00 – 2:00 **OPERATING AND MANAGING A RESEARCH PARK: MEETING COMPANY NEEDS**
Erin Koshut, President AURP; Executive Director, Cummings Research Park
Didier Lesueur, CEO, Western Research Institute

2:00 – 4:00 **Governance and Funding Strategies**
Erin Koshut, President AURP; Executive Director, Cummings Research Park
Brian Darmody, Past President, AURP; Chief Strategy Officer, AURP

- Group 1: Jill Higham, VP, UW Foundation; Angela Ver Ploeg, Senior Director of Corporate Engagement, University of Wyoming
- Group 2: Tara Evans, VP and General Counsel; Alex Kean, VP for Budget and Finance; Mike Smith, VP Governmental Affairs, University of Wyoming

4:00 – 5:00 **Wrap up Discussions and Questions**
Parag Chitnis, VP Research and Economic Development Division, University of Wyoming

5:00 **Adjournment**

Appendix 2:

SWOT ANALYSIS

STRENGTHS	WEAKNESSES
• Land • Leadership vision and commitment • Foundational building blocks • Anchor tenants • "Do anything" culture • Affordability (land?) • Student work ethic • Agility (ability to move quickly) • UW entrepreneurship training – TTO, IMPACT 307, CEI, Silicon Couloir • Identity	• Identity • Fragility (size of UW) • Industry leaders – present but not based in Wyoming • Lack of affordable housing • Lack of high-level STEM graduates • Lack of understanding of economic impact on the community • Faculty PRT process • No industry cluster (in Laramie) • Previous bad experience with P3 • Community ambivalence • Lack of incentives in the community to encourage growth (tax structure, infrastructure cost etc.) • Lack of resources for entrepreneurs (funding, space, talent) • Mentors for UW entrepreneurs (lack of)
OPPORTUNITIES	**THREATS**
• Collaborations with community partners – LCBA, WBC, Silicon Couloir, LCCC, WyoTech • Potential pipeline of innovations and assets (untapped) • Potential collaborations with Federal Labs (proposed) • Industry leaders – present but not based in Wyoming • Mentors for UW entrepreneurs (UW Alumni) • Resources o Power o Other amenities • Increased focus on translation research (culture change) • Wealth in the state of Wyoming • Capital campaign • Faculty PRT process • Organization structure of the Research Park (set it up right) • Opportunities for UW students	• Previous bad experience with P3 • Lack of understanding of economic impact on community • Presence of Research Parks in adjoining states • Revenue derived from mineral resources – it is a focus of state legislation • Declining enrollment • Tax structure that does not support community growth • Lack of housing, water, and other resources that limit community growth.

Appendix 3:

NSF Comparative State Profile of Wyoming with Surrounding States (Colorado, Idaho, Montana, South Dakota, Nebraska, and Utah) **and NSF State of Wyoming Fast Facts**

U.S. National Science Foundation

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Science and Engineering State Profiles

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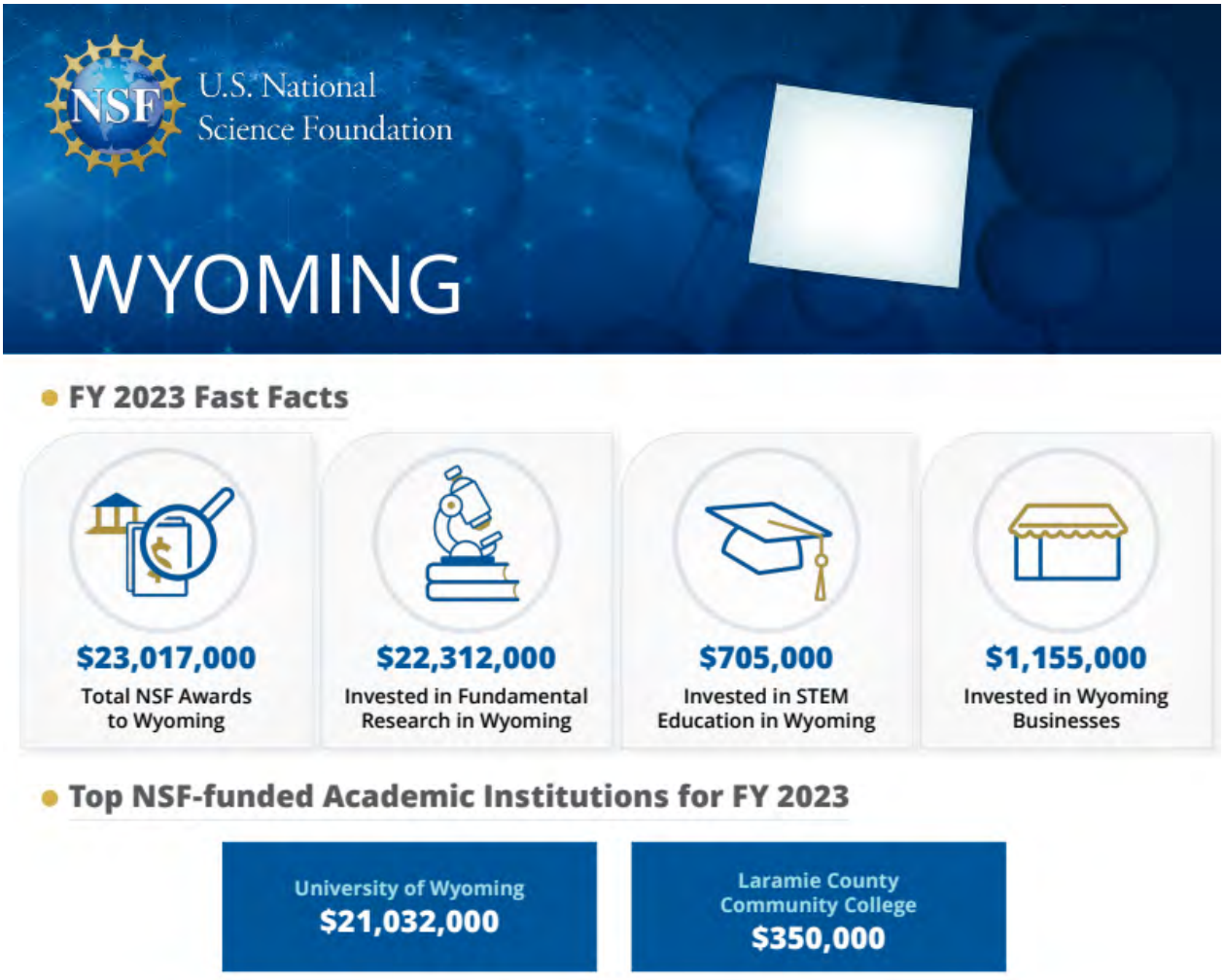
View available data for specific years: Latest Profile

Question or concerns?

Download this table

Latest profile (Most recent data)	CO		ID		MT		NE		SD		UT		WY		U.S. total	Map / Chart
Characteristic, data year (unit)	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank		
Gross domestic product, 2022 ($millions)	484,372	15	109,547	40	65,015	49	161,702	36	67,571	48	248,176	29	47,433	51	25,429,849	
Total R&D performance, 2021 ($millions)	11,386	17	3,059	33	679	48	1,703	38	345	51	5,196	28	238	52	779,953	
Business R&D performance, 2021 ($millions)	8,098	19	2,258	31	261	48	1,067	35	221	49	3,962	24	93	51	601,718	
Higher education R&D performance, 2022 ($millions)	1,899	16	180	49	341	41	627	34	117	51	1,062	25	140	50	97,681	
Academic research space, 2021 (thousands sq. ft.)	3,929	21	829	46	645	51	2,427	33	850	45	2,874	28	779	48	236,019	
Federal R&D obligations, 2022 ($millions)	4,639	10	702	33	292	43	325	42	134	50	3,196	19	80	52	184,567	



Full analysis
https://www.nsf.gov/statistics/states/interactive/show.cfm?year=0&stateID=53%2C52%2C6%2C13%2C27%2C43%2C28%2C46

Expanded fact sheet for Wyoming:
file:///C:/Users/Darmody/Downloads/wyoming_factsheet.pdf

Appendix 4:

Welcome to the Economic Development Capacity Index (EDCI) Report Generator.

To generate a one-page report, choose a county & state from the drop-down below. The report will contain the capacity percentile and value for each of the five capacity areas.

"

EDCI Report for: Albany, Wyoming

Human Capital: This capacity area focuses on the overall composition of the workforce and the quality of life for all residents in a county. Economic development differentiates itself from economic growth by incorporating the goal of improving the quality of life of individuals. This capacity area includes indicators related to education attainment, creative or inventive
Albany, Wyoming Human Capital Level: **Moderate** Percentile: **0.44**

Financial This capacity area considers the financial environment within a county. Ready access to capital can spur economic growth and entrepreneurship. Conversely, capital constraints are a significant limiter of economic growth and can inhibit innovation. This capacity area includes indicators related to local government financial health, private sector access to small business loans, small business access to federal seed funding for technology and research development activities, and access to local banks.
Albany, Wyoming Financial Capacity Level: **Moderate** Percentile: **0.81**

Industry: This capacity area considers the overall business environment within a county. Diverse economies, with robust local clusters, do not rely on a single source for their economic stability, whether that is a single business or a single industry. Increases in industry diversity and the presence of clusters contribute to economic growth and can increase resilience to economic shocks. This capacity area specifically includes measures related to local clusters for establishments and employment, industry diversity, business entries and exits, and the presence of advanced industries.
Albany, Wyoming Industry Capacity Level: **High** Percentile: **0.85**

Infrastructure: This capacity area considers the physical and environmental resources that make business and economic development activities possible. Infrastructure facilitates the movement of goods, services, and people and the enables the operations of businesses. It also contributes to quality of life, making a community or region more attractive to individuals, families, and businesses. Indicators relate to the status, quality, or accessibility of infrastructure and natural systems, including transportation, ports, transit, broadband, energy reliability, air and water quality, and green space.
Albany, Wyoming Infrastructure Capacity Level: **Elevated** Percentile: **0.72**

Institutions and Partnerships: This capacity area focuses on the public and private entities that support and facilitate economic development through collaborative networks. The support network created by these institutions and partnerships act as a force multiplier for economic development planning and investments. This capacity area includes indicators related to local government capacity, experience with grants, participation in Economic Development Districts (EDDs), institutions of higher education, non-profits, and cultural organizations.
Albany, Wyoming Institutions & Partnerships Capacity Level: **Limited** Percentile: **0.27**

Appendix 5:
Vickie Palmer Slides

AURP is …

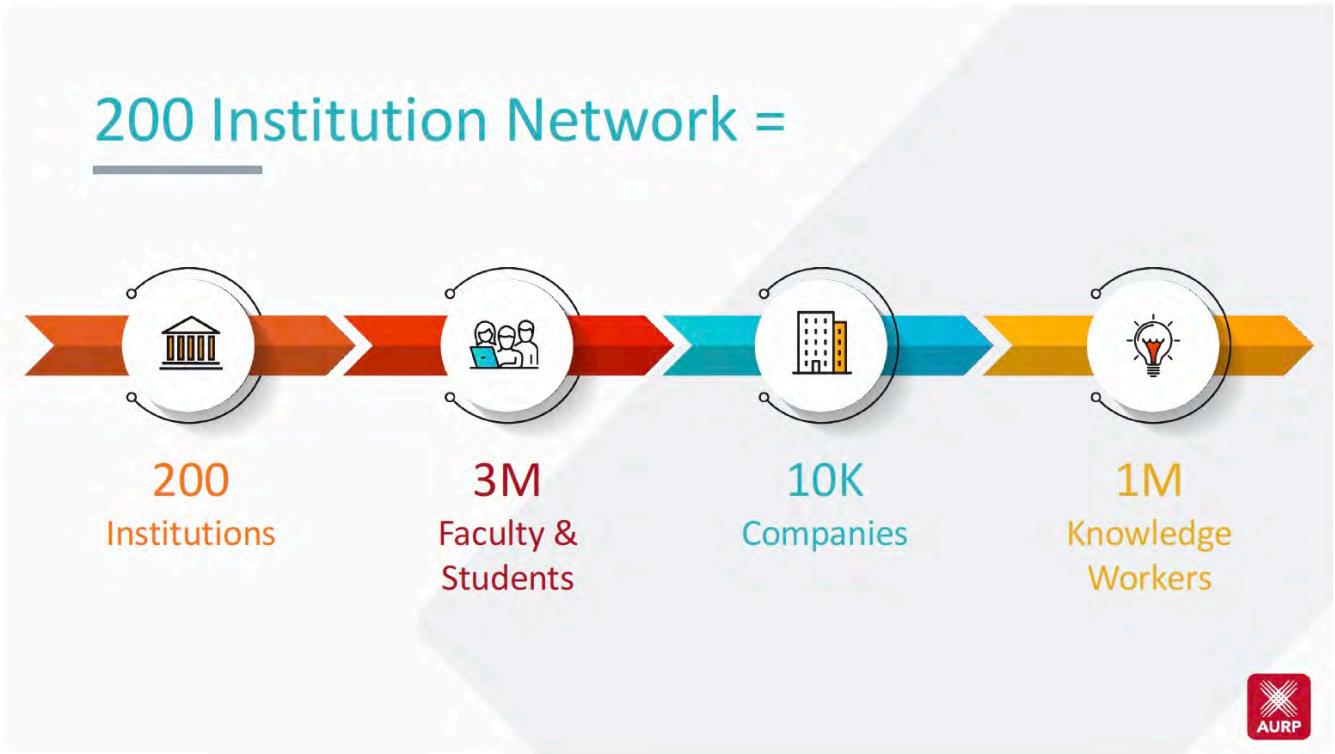
An international non profit NGO based in U.S with offices in Washington D.C. area and Arizona

- Represents research parks, innovation districts and communities of innovation in the U.S., Canada, and around the world.
- 40 states represented in U.S., six provinces in Canada and 13 countries around the globe.
- Sponsored by universities, federal labs, corporations and localities, these place based communities represent leading scientific and technology clusters

Meet Our Members

AURP members are the foundation of our Association

and represent a range of innovation districts, parks, and research institutions.


200 Institution Network =
200
Institutions
3M
Faculty & Students
10K
Companies
1M
Knowledge Workers
AURP


AggieSquare
Ancora
AstraZeneca
ASU Research Park
Arrowhead Park
Ayers Saint Gross
Ballard Spahr
Ballinger
Brandywine
bwtech
Centennial
Central Florida Research Park
Children's
Clark & Enersen
Cincinnati
Coldstream
Collaborative
COPT
CRP
DilksConsulting
DLR Group
DTVC
Embry-Riddle
fitzsimons
Fraunhofer USA
Fulton Bank
George Mason University
H-K
HR&A
HudsonAlpha
ION District
JLL
JobsOhio
Knowledge Park
Knowledge Park
KU Innovation Park
Lehigh University
LSU Innovation Park
MCB
McCowngordon Construction
Montgomery College
Maryland
Mississippi State University
Nebraska Innovation Campus
Innovation District
The Park at Auburn
Perkins&Will
Pit Monterrey
Port San Antonio
Portman Holdings
Princeton Forrestal Center
Polytechnique Montreal
Purdue Research Park
Research Park
RFD
RTP
Rosalind Franklin University
San Diego State University
Sandia Science & Technology Park
SageGlass
Science Center
scitech
Technology and Research Park
Sterling Bay
Stiletto
Texas State Star Park
Tech Parks Arizona
Teconomy
Texas Tech University
The University Financing Foundation, Inc.
Tulane University
University of Arkansas
University of Houston
University of Maryland BioPark
University of Maryland Discovery District
University of Minnesota
University Research Park
Illinois Research Park
UTSA The University of Texas at San Antonio
The University of Utah
University Technology Park
Corporate Research Center
USF
Ventas
Innovate Carolina
Waymaker
West Virginia Regional Technology Park
Wexford Science + Technology
WT
Woodbury Corporation


AURP
Building Communities of Innovation™
WE'RE IN GOOD COMPANY
Creating a successful Community of Innovation is finding the network to support it.

Annual Sponsors

WEXFORD SCIENCE+TECHNOLOGY
WHITING-TURNER
THE UNIVERSITY FINANCING FOUNDATION, INC.
JobsOhio — Ohio's Economic Development Corporation
THE UNIVERSITY OF ARIZONA TECH PARKS ARIZONA
Collaborative Real Estate
RTP
SAINT-GOBAIN
STILETTO
WAYMAKER GROUP
AstraZeneca
brandywine REALTY TRUST
NC STATE CENTENNIAL CAMPUS
Fraunhofer USA
h+k
Maryland DEPARTMENT OF COMMERCE
NEBRASKA INNOVATION CAMPUS
Page/
Perkins&Will

An "average" scale: benchmarking

SIZE

Under 200 acres

7 buildings open

250,000 sq ft,

90% of space is currently occupied

25,000 sq ft incubator space

LOCATION

Located in a suburb

Population of fewer than 500,000

GOVERNANCE

Operated by a university or a university-affiliated non-profit

TENANTS

21-100 resident organizations

64% for-profit companies

24% university facilities

4% government agencies

EMPLOYMENT

Typical park employs 850

Major industries include software, aerospace/defense and biosciences

2024

2018

2012

AURP

Economic Impact and Results

Results matter. To everyone.

- What metrics do you track?
- High-level 2018 AURP Benchmark Survey reveals impacts you can use:
  - Fostering Collaborations and Partnerships: wide range of industry partnerships utilized
  - Fostering Collaborations and Partnerships: 76% of jobs in research parks found in private sector companies
  - Importance of Entrepreneurial Development: 80% of parks had dedicated space for startups
  - Importance of Placemaking: Research Parks are at the "cutting-edge" of driving the growth of innovation districts
  - Importance of Placemaking: Research Parks often act as "anchors" of innovation districts—2/3 of parks indicated a moderate to significant role in "anchoring innovation districts" in their communities

How have we grown employment?

Research parks are growing faster than advanced industries (tech-based industries).

23% Job Growth from 2012-2017 for the 82 Parks Tracked -vs- **8%** Job Growth from 2012-2017 for Advanced Industries

This means...

61,295 Total New Jobs from 2012-2017 for the 82 Parks Tracked

All four geographies are growing.

With mid-sized metros adding the most jobs

	2012-2017 Percentage Growth	2012-2017 Job Gains
Large Metro with an Urban Core	58%	6,966
Large Metro with a Suburban Core	27%	23,040
Mid-Sized Metro	12%	12,758
Rural or Small Metro	28%	19,336

10

Research parks are linking to leading advanced industry clusters across regions.

76% of Research Parks Report having a Significant Impact on Strengthening Regional Industry Clusters

~60% of Research Park Jobs are found in Leading Advanced Industries of Bioscience and Software and Internet Services

Most importantly, research parks are positively impacting their local economies.

404,167 Direct Jobs in US and Canadian Research Parks + **544,000** Additional Jobs from Indirect and Induced Impacts

This means...

1.00 Research Park Job

-creates-

1.34 Additional Jobs

11


How have we impacted entrepreneurial development?
Research park startups are more successful than new companies started outside of parks.
75%
Research Park Startup Business Survival Rate
-vs-
49%
National New Business Survival Rate
(After 5 Years in Operation according to 2016 Kauffman Index of Main Street Entrepreneurship)
39
Average Incubator Graduates per Research Park from 2012-2017
Launching startups continues to be a core focus of research parks.
80%
of Research Parks with Dedicated Startup Space
68%
of Research Parks Provided Business Planning Services
62%
of Research Parks Provided Technology and Market Assessments
45%
of Research Parks Provided Proof-of-Concept Funding
Incubator graduates are staying in their regions but not always in the park that nurtured them.
Of the 75% Surviving Startups
17%
Startups Moved into the Research Park
-vs-
46%
Startups Moved out of the Research Park but Stayed within the Region
-vs-
11%
Startups Moved out of the Research Park and Left the Region
Tenants are generating significant levels of support.
$114 million
Generated in Average Outside Funding per Park over 2012-2017 Period
14% Federal Research Grants
7% Federal SBIR
5% Other Funding
2% State Grants and Awards
67% Angel Investor and Private Venture Capital
12
13


AURP's motto
"If you've seen one research park or innovation district, you've seen one research park or innovation district."
AURP

What are Communities of Innovation?

Research Park/Innovation District

Can be suburban location—tied to one anchor institution or dense environment with multiple anchors

Single-purpose or mixed-use space

Strong university affiliation/ relationship to be a strong foundation for academic-industry collaboration

Community of Innovation

They include Research Parks, Incubators, Innovation Districts

They are purposeful in focus on technology-based economic development and planned communities with rich programming and activation

Without intentionality of covenants, central programming and activation, your location is an office park.

AURP

Over 25 Peer Experts

Module Highlights...

- Economic Impact & Results
- Working with Universities & Local Organizations
- Governance
- Financing Strategies
- Marketing & Communications
- Programming & Engagement Strategies
- Government Relations
- And so much more!

Communities of Innovation 101 On-Demand Education Series

For one purchase price – gain access to our AURP education series including 9 modules plus 6 bonus case studies!

$1,500 member / $2,000 non-member

REGISTRATION IS OPEN NOW

AURP Building Communities of Innovation™

Future Programs & Webinars

WEBINAR
Oct 29, 2:00-3:00 EDT

Building Clean Tech Ecosystems with Federal, State, & University Resources

- **U.S. Dept of Energy**
- **Kathy Magruder,** Maryland Clean Tech Council
- **Meg Hardon**, Infineon *(invited)*
- **Brian Darmody**, AURP

PEER ROUNDTABLE
Nov 21, 2:00-3:00 EST

Ross DeVol
Heartland Forward

Joda Thongnopnua
TIP Directorate, NSF

Ranu Jung
I³R, University of AR

Community of Practice Webinar

Building Communities of Innovation™

AURP Programs & Caucuses

AURP Spring Training

AURP 2023 International Conference
October 16-19 in Newark, DE
Hosted by STAR Campus

AURP I2RP
Insights into Research Parks

P2P

Creating Communities of Innovation
Virtual Seminar

AURP Clean Tech & Building Resiliency Caucus

AURP Air & Space Caucus

AURP RAIN
Rural Autonomous Innovation Network

AURP Bio Health Caucus

Community of Practice Webinar

Building Communities of Innovation™

Building Communities of Innovation™

CONNECT & CREATE Check out the AURP 2023 Programs

SPRING TRAINING | February 27–March 2 at Tempe Mission Palms, Tempe, AZ

Enroll in the ultimate masterclass with experts in the industry as we cover the most important topics and tackle burning questions of the day through interactive sessions. Learn from not only our speakers, but your peers as you take part in the ultimate knowledge exchange at AURP's Spring Training. **springtraining.aurp.net**

BIO HEALTH CAUCUS | June 4–5 in Boston, MA

At AURP's 2023 BIO Health Caucus, we return with the state Bio Association Roundtable, plus discuss legal issues for bio startups, the role of the bio press, federal bio funding updates, and more.

Held in conjunction with BIO International Convention | June 5-8

Communities of Innovation 101 On-Demand, Digital Series

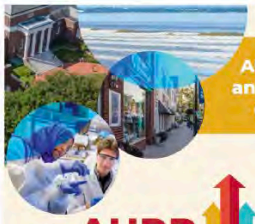
Over 10 education modules plus additional case studies to advance your knowledge.

AURP Air & Space Caucus

Chaired by leaders from Cummings Research Park, CASIS, and UMD UAS Test Site – AURP is launching communities of innovation.

Regional Partnership Development Program

Member-backed scholarships for Minority Serving Institutions to building diverse and inclusive communities of innovation.



AURP is thrilled to announce our 2023 conference host!

AURP 2023 ANNUAL CONFERENCE

OCTOBER 2023 IN NEWARK, DE

Hosted by STAR Campus, University of Delaware

STAR Campus, at the University of Delaware, sits atop 272 acres that once housed the Chrysler auto company's 3.4 million-square-foot Newark assembly facility. Built in 1951, it produced tanks for the U.S. Army, followed by popular automobile models.

STAR Campus is driving discovery for the future:

- **$145.5 million** in sponsored research in FY2018
- **465** patent disclosures, more than **130** patents issued and **58** licenses executed since 2009
- **26 start-ups** resulting from licensing of UD technology
- **More than $13 million** in venture capital funding for UD start-ups
- **1M square feet** of real estate in use and under construction-including the Ammon Pinizzotto Biopharmaceutical Innovation Center and NIIMBL buildings

#BuildingtheAURPNetwork

Association of University Research Parks

Vickie Palmer, CEO
(520) 248-1281
vickiepalmer@aurp.net
www.AURP.net

Appendix 6:
Kate Engle Slides

NEBRASKA INNOVATION CAMPUS

Creating a place where talent wants to be.

The Beginning

NEBRASKA INNOVATION CAMPUS

Making Our Mark & Writing Our Story

NEBRASKA INNOVATION CAMPUS

NEBRASKA INNOVATION CAMPUS

NEBRASKA INNOVATION CAMPUS

- Branding and logo exercise
  - Focus groups
- No red N
  - Advantages and disadvantages
- Community connection
- Statewide connection
- Conversation starter
- Complimentary
- Flexible and adaptable

NEBRASKA INNOVATION CAMPUS

570,000 Sq. Ft. Complete

NEBRASKA INNOVATION CAMPUS

Stating Who We Are & What We Do

Nebraska Innovation Campus (NIC) is a campus designed to facilitate new and in-depth partnerships between the University of Nebraska and private sector businesses. It is the place to build the big idea, where imagination meets hard work, and collaboration yields results. NIC provides you and your organization access to culture, talent and resources.

Nebraska Innovation Campus (NIC) is connecting the talents of experts, companies and the university to create a unique culture of innovation. NIC is designed to facilitate new and in-depth partnerships between the University of Nebraska and private sector businesses. NIC is adjacent to the University of Nebraska–Lincoln and strategically provides access to research faculty, facilities and students.

NEBRASKA INNOVATION CAMPUS

NIC Culture

Creating physical space and events/programs that:

- Encourage unplanned conversations and creative collisions
- Promote encounters and innovation
- Engage university faculty, staff, students and the general community

NEBRASKA INNOVATION CAMPUS

Amenities

- NIC partners can become affiliate employees of the University of Nebraska–Lincoln. Affiliate status provides access to:
  - University talent (from faculty to students) for research projects and internships
  - Printed materials at the University of Nebraska–Lincoln libraries
  - Reciprocal parking between NIC and the University of Nebraska–Lincoln
  - Complimentary Wi-Fi in common areas at NIC and the University of Nebraska–Lincoln
  - Discounts on memberships to Nebraska Innovation Studio (the makerspace at NIC), on rental rates at the NIC Conference Center, at the university bookstore, and on tickets to performing arts performances and intercollegiate athletic contests (when available)

NEBRASKA INNOVATION CAMPUS

NIC Partner Events

NEBRASKA INNOVATION CAMPUS

- Events and programs created just for our NIC Partners
  - NIC Partner Lunches: March Madness Lunch, Walking Taco Lunch (May), Grateful & Thankful Lunch (November)
    - Average 200+ attendees
  - Partner Lunch & Learns
    - Feature a NIC Partner presenter and a tour
  - Massage Mondays
    - Partnership with the university Campus Rec Center
  - Holiday candy and cookie deliveries

NEBRASKA INNOVATION CAMPUS

More Partner Events

NEBRASKA INNOVATION CAMPUS

- Celebrating fun holidays
  - International Coffee Day
  - International Popcorn Day
- Events suggested by NIC Partners
  - Ice Cream Social
- NIC Blood Drives:
  - Partnership with the Nebraska Community Blood Bank
- Meetups
  - AI and Data-Driven Innovation Meetup
  - Ag Tech Meetup

NEBRASKA INNOVATION CAMPUS

The Mill Coffee & Bistro

- Game changer
- Opened June 12, 2017
- Coffee, food and adult beverages on site
- Created a place where people felt welcome – especially students and the community
- Created additional events and event space

NEBRASKA INNOVATION CAMPUS

Nebraska Bluegrass Concert Series

NEBRASKA INNOVATION CAMPUS

Community Involvement

NEBRASKA INNOVATION CAMPUS

- Engaging the local community by:
  - Hosting 1 Million Cups Lincoln at The Mill Coffee & Bistro
    - Community Organizer
  - Hosting Hour of Code
    - Planning, implementation and promotion
    - Partnership with the Lincoln Partnership for Economic Development, Lincoln Public Schools, University of Nebraska–Lincoln
  - Lincoln Startup Week
    - Planning, implementation and promotion
  - Partnering on city wide events
    - Earth Day CHaRM Event – Partnership with the Nebraska Recycling Council
    - City of Lincoln Autonomous Shuttle Project

NEBRASKA INNOVATION CAMPUS

Communicating with our Partners

NEBRASKA INNOVATION CAMPUS

- Weekly e-newsletter
  - This Week at NIC
- Events Calendar
  - Posted on NIC website
- Social Media
  - Facebook
  - Twitter
  - LinkedIn
- Visiting offices – just stopping in to say hello

NEBRASKA INNOVATION CAMPUS

Communicating with the Community

NEBRASKA INNOVATION CAMPUS

- NIC Website
  - Events Calendar
  - News
  - NIC Story
- Social Media
- Presentations
- Tours
- Press Releases and Media Coverage
- Being active in the community and attending events
  - We show up and support community efforts and endeavors

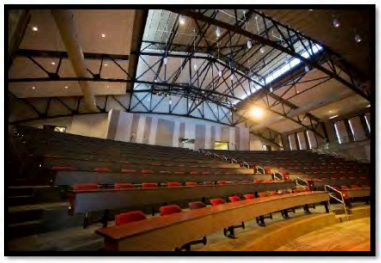
NEBRASKA INNOVATION CAMPUS

Connecting Through Space & Place

Facilities & Resources

NEBRASKA INNOVATION CAMPUS

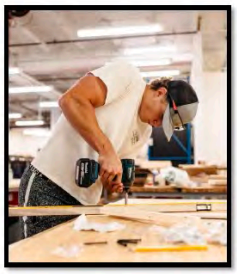
NIC Conference Center



The NIC Conference Center is operated and managed by the Nebraska Alumni Association. The facility includes a 400-seat auditorium with power at each seat, banquet hall and 8 breakout rooms.

NEBRASKA INNOVATION CAMPUS

Nebraska Innovation Studio


Nebraska Innovation Studio is a is a community-oriented makerspace that serves as a hub for innovators, artists and entrepreneurs.

NEBRASKA INNOVATION CAMPUS

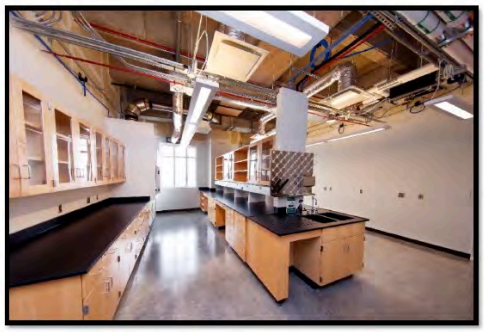
INNOVATIONSTUDIO.UNL.EDU

Biotech Connector

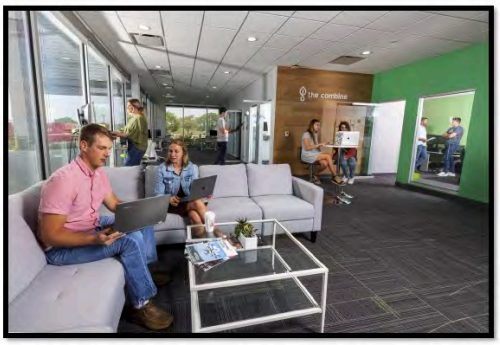
A collaboration between Nebraska Innovation Campus, University of Nebraska–Lincoln, Invest Nebraska, Nebraska Department of Economic Development & Bio Nebraska

- 7,700 sq. feet of well-equipped wet lab research space
- Flexible and affordable access to quality bench space and equipment
- Open, interactive laboratory design
- Short-to medium-term occupancy by small to mid-sized biotechnology firms
- Catalyze research advances and stimulate the development of technologies with commercialization potential
- Provides incubation space and services to bioscience startups and high-growth biotech and research-based businesses

WWW.BIOTECHCONNECTOR.COM



The Combine



Incubator space for agriculture and food-related startup companies

- Dedicated desks and private offices
- Commercialization support through mentorship and a capital readiness program, network events and a network of partnering producers across the state
- Founding Sponsors
  - Invest Nebraska
    - The state's public-private venture development organization
  - Nebraska Department of Economic Development

NEBRASKACOMBINE.COM

The Suite Spot

- Office space in the Food Innovation Center for food entrepreneurs and growing companies to collaborate with a diverse group of scientists, develop and test new products and transform the food industry.
- Offers on-site private offices, dedicated desks, and hot desks with access to a state-of-the-art food facility that provides:
  - Dedicated pilot plants
  - Development and analytical laboratories
  - Sensory testing
  - Product labeling
  - Compliance expertise
  - Entrepreneurial consultation
- Suite Spot partners receive discounts on Food Processing Center services, connect with like-minded forward-thinking food businesses and are included in programming and events at NIC.

NEBRASKA INNOVATION CAMPUS

FPC.UNL.EDU/SUITE-SPOT

The Landing Coworking Space

NEBRASKA INNOVATION CAMPUS

- This is a small open room in the suite occupied by NIC, NUtech Ventures and UNL Industry Relations
- This space is designed for pre-revenue/funded university faculty and/or staff companies to obtain a work address, utilize conference rooms and have access to NIC resources and amenities

NEBRASKA INNOVATION CAMPUS

Innovation Advancement Suites

- Shared office concept
- Hot desks, single offices and small office suites available for lease
- Utilities, insurance, taxes and common area maintenance included in rent
- 24-hour access, 365 days per year (key card access)
- 2 conference rooms
  - Large room seats 16
  - Small room seats 4
- Kitchenette

NEBRASKA INNOVATION CAMPUS

Sustainability

Sustainability & Attention to the Environment Matter

NEBRASKA INNOVATION CAMPUS

Sustainability

- Sustainability and attention to the environment matter
  - Companies are calculating carbon footprints & greenhouse gas emissions
- NIC is committed to developing a sustainable environment
  - Central Renewable Energy System (CRES)
  - Zero Waste Facility
  - Smart Buildings
  - Minimum LEED Silver Design Standards

NEBRASKA INNOVATION CAMPUS

3 Bin Waste System

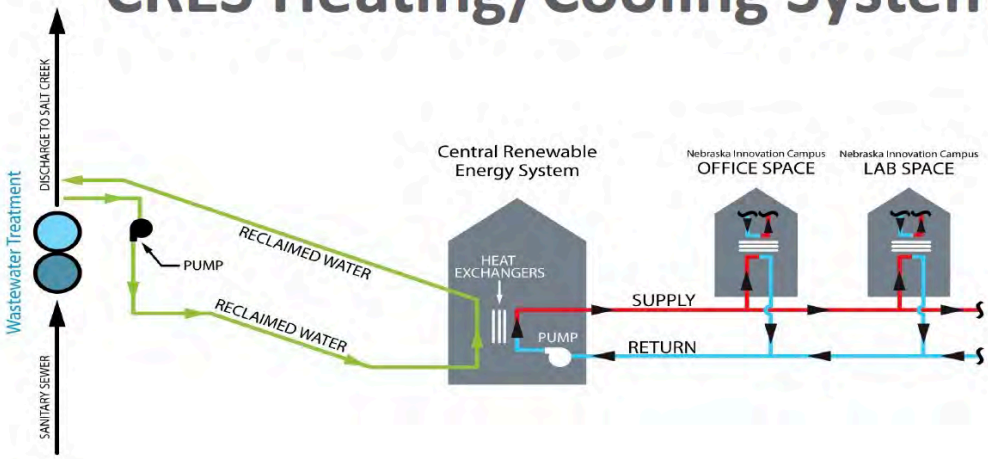
NEBRASKA INNOVATION CAMPUS

Hefty® EnergyBag Program at NIC

The Hefty® EnergyBag program is an innovative program that uses orange Hefty® bags with existing recycling services to collect previously non-recycled plastics and convert them into valuable energy resources.

NEBRASKA INNOVATION CAMPUS

CRES Heating/Cooling System



Flow Diagram
Lincoln, Nebraska

NEBRASKA INNOVATION CAMPUS
OLSSON ASSOCIATES

NEBRASKA INNOVATION CAMPUS

Telling Our Story of Growth & Development

Going & Growing

NEBRASKA INNOVATION CAMPUS

Mission:

The mission of Nebraska Innovation Campus is to foster a vibrant ecosystem of innovation, research and entrepreneurship. NIC is dedicated to advancing knowledge and driving economic development by facilitating collaboration among industry partners, researchers and the community. Through state-of-the-art facilities, unique resources and a commitment to sustainability, NIC aims to empower innovators to translate ideas into impactful solutions that benefit society locally, regionally and globally. By nurturing a culture of creativity, diversity and excellence, Nebraska Innovation Campus strives to be a premier hub where ideas flourish, partnerships thrive, and innovations shape the future.

Vision:

Creating a place where talent wants to be.

NEBRASKA INNOVATION CAMPUS


NEBRASKA
INNOVATION
CAMPUS
INNOVATE.UNL.EDU

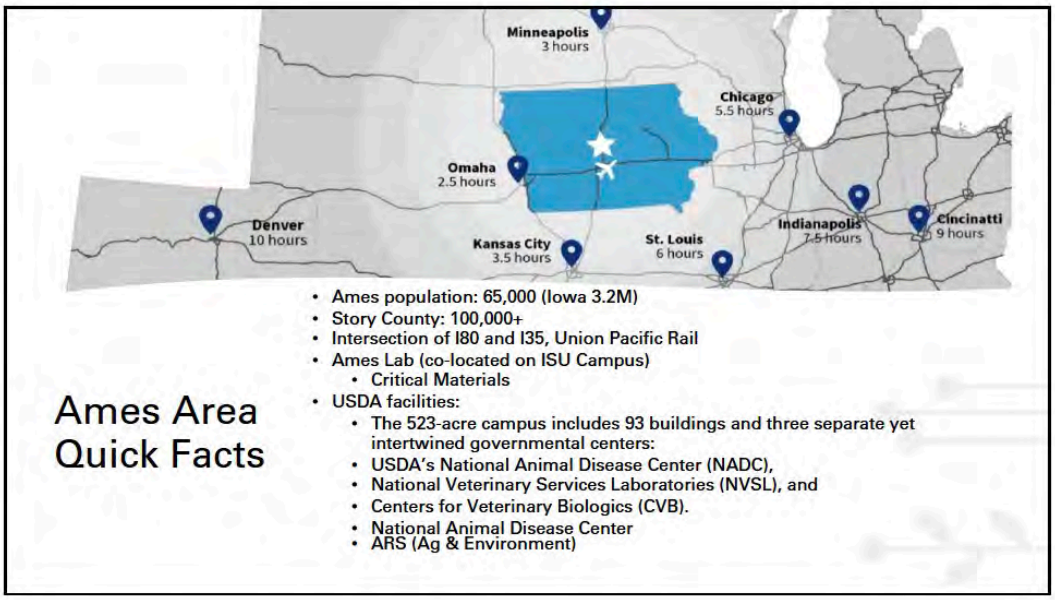
Appendix 7:

Allison Doyle slides

1

2

12/4/24


Minneapolis
3 hours
Chicago
5.5 hours
Omaha
2.5 hours
Denver
10 hours
Kansas City
3.5 hours
St. Louis
6 hours
Indianapolis
7.5 hours
Cincinnati
9 hours
Ames Area Quick Facts
• Ames population: 65,000 (Iowa 3.2M)
• Story County: 100,000+
• Intersection of I80 and I35, Union Pacific Rail
• Ames Lab (co-located on ISU Campus)
• Critical Materials
• USDA facilities:
• The 523-acre campus includes 93 buildings and three separate yet intertwined governmental centers:
• USDA's National Animal Disease Center (NADC),
• National Veterinary Services Laboratories (NVSL), and
• Centers for Veterinary Biologics (CVB).
• National Animal Disease Center
• ARS (Ag & Environment)

3


CONNECT WITH US FOR:
IOWA STATE UNIVERSITY
Economic Development and Industry Relations
IOWA STATE UNIVERSITY
Office of Innovation Commercialization
▪ Commercialize technologies
▪ Negotiate industry research & partnerships
▪ Innovations and IP resulting from the research efforts at ISU
▪ Industry funded research
▪ Execute research agreements with industry and commodity groups
IOWA STATE UNIVERSITY ResearchPARK
▪ Economic development asset
▪ Space for lease
▪ Job creation, workforce solutions
▪ Access to talent, research and specialized equipment
AMERICA'S SBDC IOWA
▪ One-on-one counseling
▪ Training and webinars
▪ Market research
▪ Rural Business Innovators
ciras
▪ Business and technical assistance
▪ Training and education
▪ Growth, leadership, Productivity, Technology & workforce
IOWA STATE UNIVERSITY
Pappajohn Center for Entrepreneurship
▪ In-classroom
▪ Out-of-classroom experiences
▪ Programs and competitions
▪ Competitive funding opportunities
▪ Venture support

4

12/4/24

IOWA STATE UNIVERSITY

$5 BILLION
ECONOMIC IMPACT

- $123 million financial impact
- $41.1 million in capital raised
- 1,661 jobs + 211 business starts
- $301.3 million in research funding
- 1,336 workforce grants for high demand jobs
- $5 + million ROI

5

Innovation & Economic Prosperity University Awards

Recognized nationally and globally for our work in Economic Development and Innovation. Iowa State has had an IEP University designation since 2016.

IEP Awards:

2023 – Connections Award Winner - top IEP prize
2022 – Innovation Award Winner
2021 – Place Award Winner
2020 – Innovation Award Winner
2018 – Innovation Award Finalist
2017 – Talent Award Winner

IOWA STATE UNIVERSITY

6

ISU Research Park History

IOWA STATE UNIVERSITY ResearchPARK

36 years of partnerships: 1987 – 2024

7

ISU Research Park: Who We Serve

IOWA STATE UNIVERSITY ResearchPARK

- Startup Companies
- Many Iowa Companies (typically with headquarters in rural Iowa) as well as International
- Large Companies
- Multinational Companies

Primary Markets

- Precision and Digital Agriculture
- Bioscience/Biobased Chemicals
- Vaccines/Immunotherapy
- Tech

How ISURP is different:

- No cornerstone company to jumpstart activity – consistent growth over the years
- **Startup mindset**
- Low barrier of entry pathways to be a tenant at the Research Park

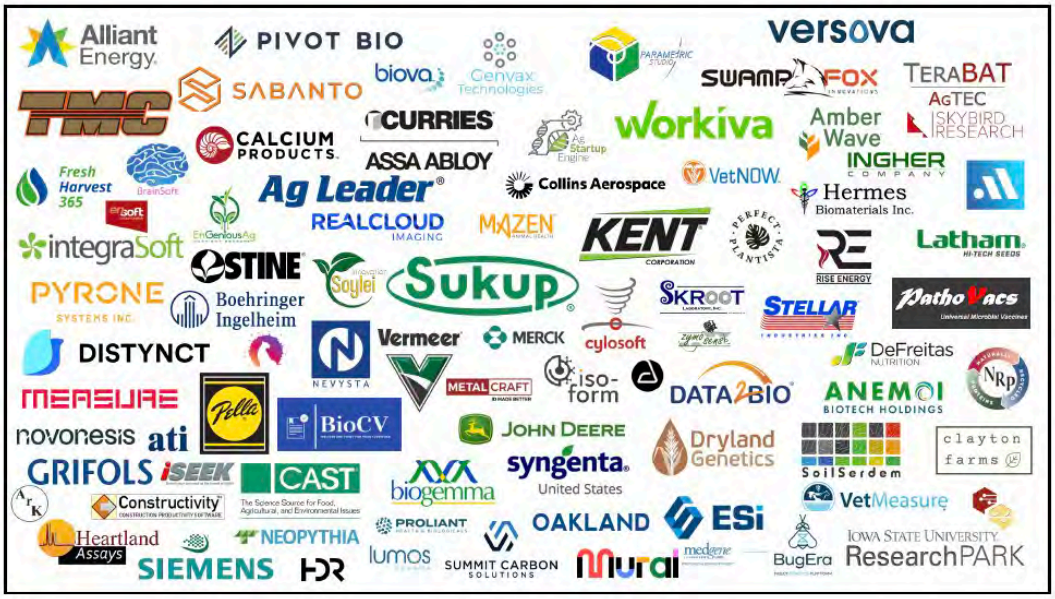
8

Research Park Today

IOWA STATE UNIVERSITY ResearchPARK

- 550 acres
- 1M+SF of developed commercial and laboratory space
- 22 buildings:
  - ISURP owned: 12
  - University owned (ISURP sublets to corporate tenant): 1
  - Developer owned: 2
  - Owner owned: 7
- 140 companies
- 2,500+ people employed at the Research Park, plus more than 400 interns
- Comprehensive corporate engagement strategy, focused on tenant success (5 ISURP founded startups have IPO'd and countless acquisitions)
- Pipeline: 5 tenant builds, housing (125 units), 3 commercial builds and 8 CYTown builds

9



10

12/4/24

Changing the Value Proposition

IOWA STATE UNIVERSITY ResearchPARK

Access to Talent

Research – IP– Startups

Specialized Equipment or Service

11

Industry Collaboration: Paths of Engagement

IOWA STATE UNIVERSITY ResearchPARK

Talent	Corporate Engagement/ Branding	Research	Specialized Equipment & Spaces	Philanthropy
Internship Program Development	Student Organizations	CyBiz	Fee for Service	Scholarship/ Leadership Programs
Career Services Connections & Career Fairs	Community Builders	Capstone Projects	Labs/ Staff	Mentor Network
On Campus Interviews	Speaking Gigs	"One Off"/ President's Initiatives	Mitigate Risk/Liability	Seed Funding
Workforce Immersion Experiences	Advisory Boards (NSF/ local & national)	Grad Students/ Post Docs	Prototyping	Naming Opportunities
Job Boards	Industry Associations	Collaborative Reseach	Visualization	
CyHire	Sponsorships -Equipment on Campus -Events	Intellectual Property	Biotechnology Research Facilities Access	
	Facility Development	Professors as Advisors Feasibility Testing/ Surveys/Productivity Analysis		

12

12/4/24

ISURP Innovation & Talent Hubs

IOWA STATE UNIVERSITY ResearchPARK

- ISURP recommends full-time dedicated staff to assist with student projects and mentorship
- Many companies couple a talent hub location with an innovation office (technology scouting + research collaboration)
- ISURP provides staff (concierge) to assist in connecting to Iowa State
- ISURP provides community development opportunities to assist companies with culture building

JOHN DEERE	KENT	Sukup	Vermeer	CURRIES ASSA ABLOY
				
▪ 100+ Employees at 2 ISURP Locations ▪ Headquartered in Moline, IL	▪ 5 Employees at ISURP Location ▪ Headquartered in Muscatine, IA	▪ 20 Employees at ISURP Location ▪ Headquartered in Sheffield, IA	▪ 46 Employees at ISURP Location ▪ Headquartered in Pella, IA ▪ Built Applied Technology Hub at ISURP in 2016	▪ 6 Employees at ISURP Location ▪ Headquartered in Mason City, IA

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Campus: Path to Innovation > RP

IOWA STATE UNIVERSITY ResearchPARK

CORPS NSF Innovation Corps

STARTUP FACTORY ISU

IowaG2M

Idea → iCorps → SUF → IA G2M → ISURP

CoWorking/Affiliate → Single Office (plug and play) → Shared Lab (CyVax) → Single Lab → Office/lab suite in multi tenant → Build to suit → Developer led → Buy land/build

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12/4/24

Startup Resources: Funding

IOWA STATE UNIVERSITY ResearchPARK

- SBIR/STTR
- PIRI/RIF
- IEDA scale up (State Economic Development Funding)
- AgStartup Engine (early stage 50-250K) • located at ISURP
- Ames Seed Capital (venture) • located in Ames
- Summit Ag (venture) • located at ISURP • partially funded ASE
- Plaines Angels (venture) • based in Des Moines, just launched seed fund based on MIT REAP collaboration
- America's Seed Fund (venture) • based in Des Moines)
- Next Level Ventures (venture, based in Des Moines)
- Maple Studios (fractional services) • owned by ISURP tenant, based in Des Moines
- ISA Ventures (venture) • based in Cedar Rapids
- Students: $.5M+ of business plan competitions, pitches, etc

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A Community of Innovators

IOWA STATE UNIVERSITY ResearchPARK

- Food Trucks
- CEO/Executive Roundtables
- Legislative Visits
- Innovation Lunch Club
- The Park After Hours
- CyStarters and Startup Factory Demo Days
- Press Conferences
- Pitch Competitions
- Fitness Challenges
- Community Events
- Crop Quest Challenge

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12/4/24

Incubation Feeders

IOWA STATE UNIVERSITY ResearchPARK

ISU Startup Factory

STARTUP FACTORY ISU

137	21	147	$96M
# of companies that have completed the Startup Factory Program	# of companies completed the program last FY	# of jobs created by the program	Total capital raised since 2016 (non dilutive)

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ISU Pappajohn Center for Entrepreneurship

IOWA STATE UNIVERSITY ResearchPARK

- Princeton Review Top Undergraduate Entrepreneurship Programs , #12 2024, #11 2023, #11 2022, #11 2021
- U.S. Association for Small Business and Entrepreneurship (USASBE) Model Program, 2021
- USASBE Model University Accelerator, 2024,
- The Accreditation Council of Entrepreneurial and Engaged Universities (ACEEU), Entrepreneurial University of the Year, 2023
  Runner up Entrepreneurial Initiative of the Year, 2024
- The Global Consortium of Entrepreneurship Centers (GCEC) Nasdaq Center for Entrepreneurial Excellence Award, 2022

4600	$245,000	48/65	6545
People touched through programs, workshops, competitions, and student programs	Awarded to young entrepreneurs	Companies served by CyBIZ Lab/student employees	Hours of mentoring (with SBDC) responsible for 129 new ventures, 234 jobs and $13.4M raised

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Perks our startups love

- Incubators and accelerators are all located at ISURP
- MIT Venture Mentor Service located at ISURP
- SBDC offices (free counseling) are embedded at the ISURP Core Facility
- All tech transfer activities (both for companies and university founders) at ISURP
- Shared conference rooms in all multi tenant buildings
- All events are free and open to all
- Address overnight
- ISURP hiring program
- ISURP intern matching program
- ISURP wide internship programming

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Workforce Solutions

- Job Board
- ISU Undergrads on Research Park Payroll
- Workforce Initiative Learning Sessions
- CyHire for Jobs or Events
- Career Services Connections & Career Fair
- Intern Events & Socials at Research Park
- On Campus or Research Park Interviews
- Industry Experts in the Classroom & Other Events

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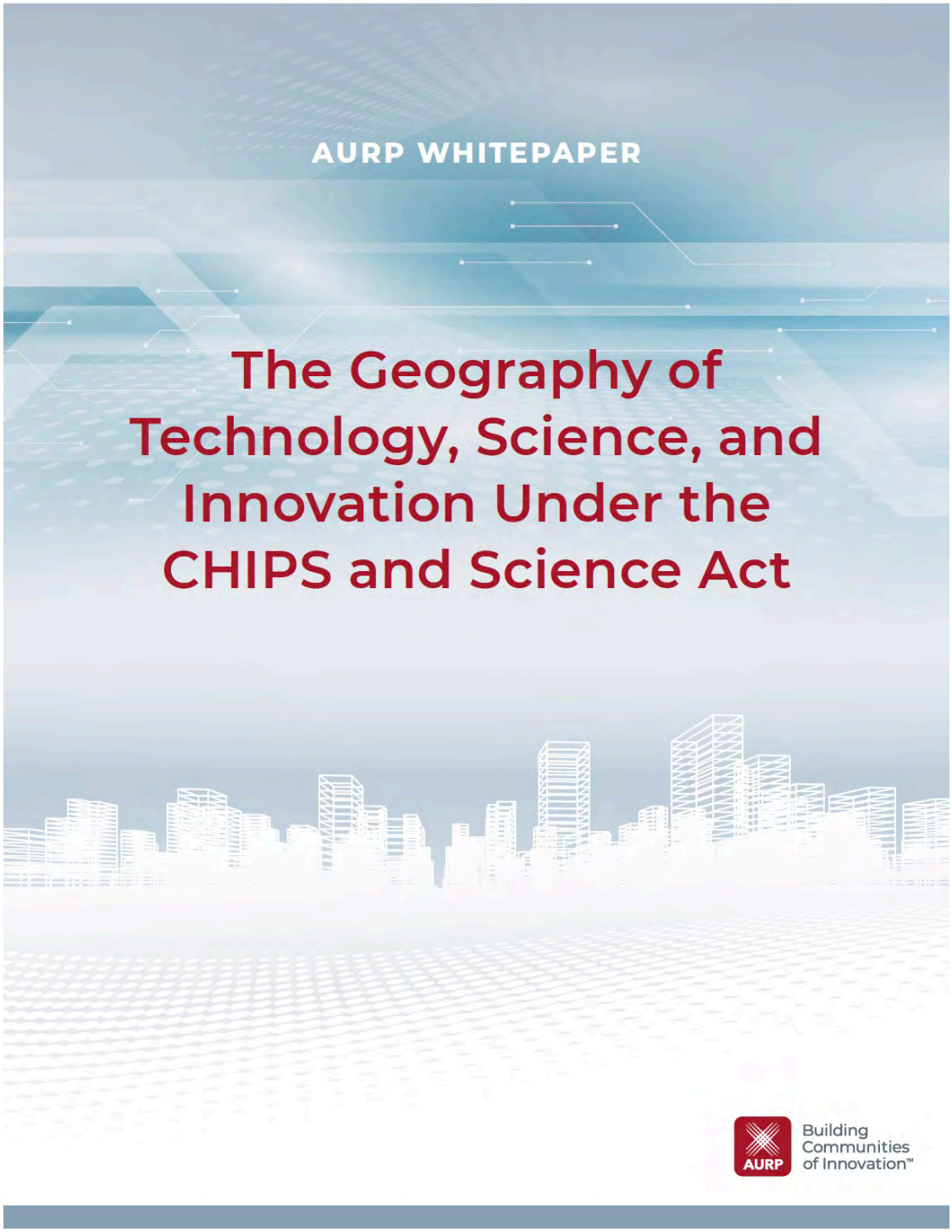
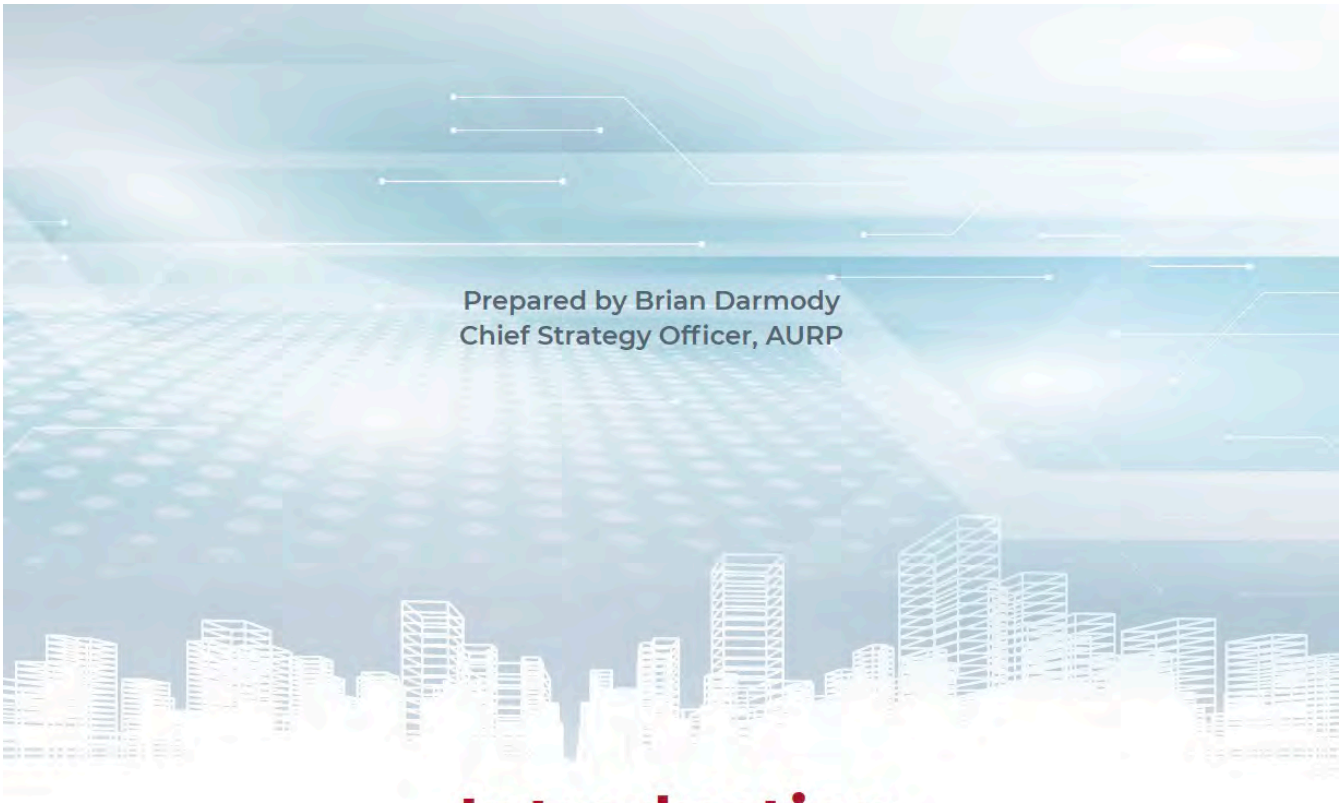
Appendix 8:

Geography of Innovation (showing federal preference for rural states in funding under CHIPS and Science Act: https://aurp.memberclicks.net/assets/press-releases/Press_release_CHIPS_Act_WhitePaper.pdf





Introduction

The CHIPS (Creating Helpful Incentives for Producing Semiconductors) and Science Act passed Congress and was signed into law by President Biden on August 9, 2022. The Science portions of the Act would authorize the largest five-year investment in public R&D in the nation's history.

One important motive in passing the bill was to spread research and development funding and its impact to more areas of the United States than has occurred historically.

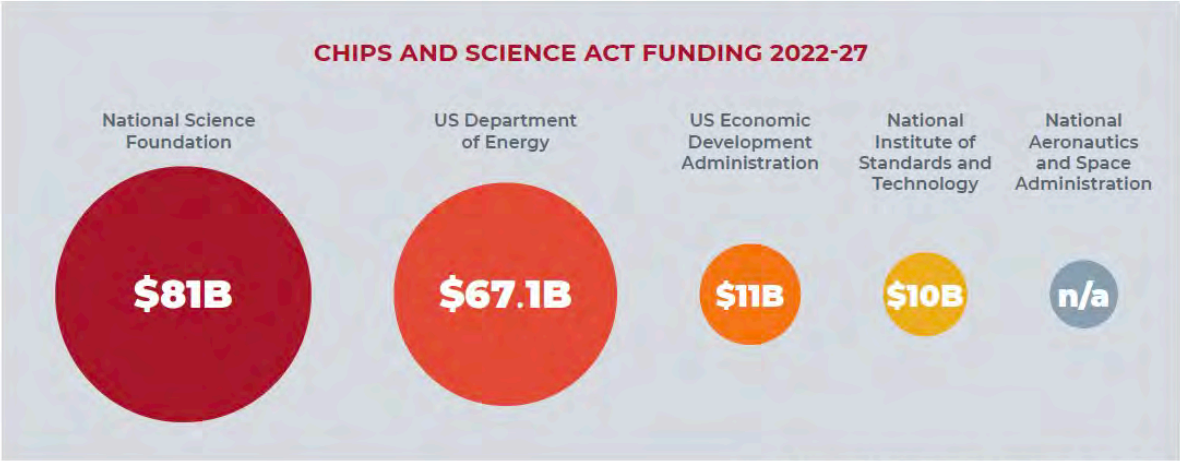
Overall, the Science portion of the CHIPS and Science Act authorizes $174 billion in spending over the next five years. Most of the authorized funding is for scientific R&D and commercialization.

Notably, the Act calls for an estimated **$77 billion for development of technology hubs** across the U.S., funded by the U.S. Department of Commerce (DOC), National Science Foundation (NSF) and U.S. Department of Energy (DOE), that will be explored in detail below.

But this funding has not yet been appropriated by Congress. Nevertheless, research parks, innovation districts, businesses, universities, federal labs, states, regions, and communities should prepare and strategize on how to compete for this unprecedented level of funding.

INTRODUCTION

The CHIPS and Science Act authorizes $174 billion for investment in science, technology, engineering, and math programs, workforce development, and R&D



From McKinsey & Company CHIPS report, October 2022

In contrast, the CHIPS portion of the Act — approximately $50 billion — has already been funded by Congress. Accordingly, immediate focus has been on how funding for the CHIPS and Science Act will be sought competitively by industry, universities, regions and local communties in 2023, including the selection of a National Semiconductor Technology Center (NSTC), a $11 billion innovation hub that will advance semiconductor technology and seed new industries.

The process of organizing NSTC, including a possible hub and spoke model across the U.S., is already underway by the DOC. Given the emphasis on semiconductor technology within the CHIPS and Science Act, organizations and higher education institutions with existing or potential engineering and workforce opportunities in semiconductor manufacturing and research will be the most likely applicants for funding from the DOC.

However, the Science portion of the Act gives a much broader range for organizations and institutions ability to compete for new research opportunities, STEM workforce and manufacturing funding (assuming funding is appropriated) including new technology hubs managed by the DOC and NSF. Funding strategies for each set of technology hubs vary slightly given Congressional policy direction, history of the agencies and additional factors to be discussed in this paper.

Department of Commerce (DOC) Technology Hubs

Under the CHIPS and Science Act and as directed by Congress, the DOC is authorized to create a minimum of 20 geographically distributed innovation hubs focused on tech transfer, job creation and expanding U.S. innovation capacity, authorized at $10 billion over five years.

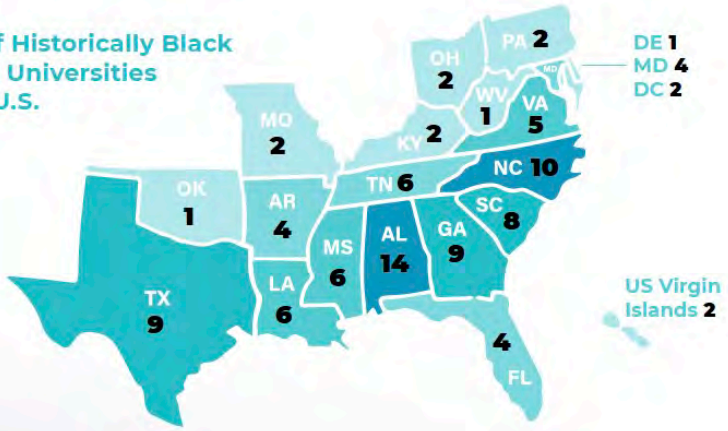
Projects funded through the program should reside in areas that are not already leading technology centers, with at least *three new hubs located "in each U.S. Economic Development Administration (EDA) regional division."* In addition, Congress has directed that at least one-third of eligible consortia "significantly benefit small and rural communities" including EPSCOR (Established Program to Stimulate Competitive Research) states and that one hub should be headquartered in a "low-population EPSCOR state."

A state is eligible to participate in the EPSCOR program if their most recent five-year level of total NSF funding is equal to or less than 0.75% of the total NSF budget. The U.S. National Institutes of Health (NIH) has a similar program for bio research funding targeting states with low NIH funding levels.

Congress is also interested in involving Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions (HSIs) in the development of these technology hubs. Accordingly, communities interested in competing for DOC technology hubs need to analyze which states are in their EDA region, work to connect with EPSCOR states, and involve HBCUs, HSIs and other universities in their region.

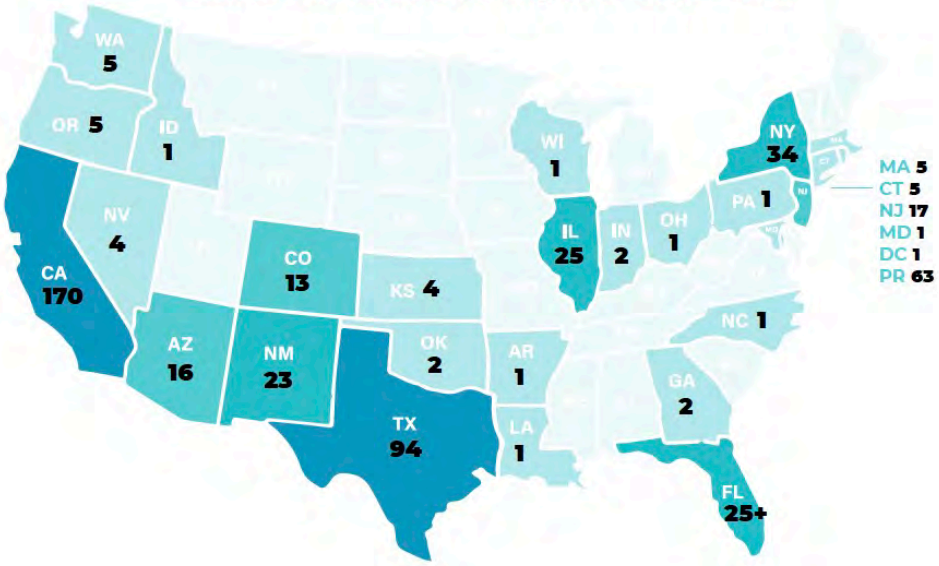
Locations of Historically Black College and Universities (HBCUs) in U.S.

Source: DOE

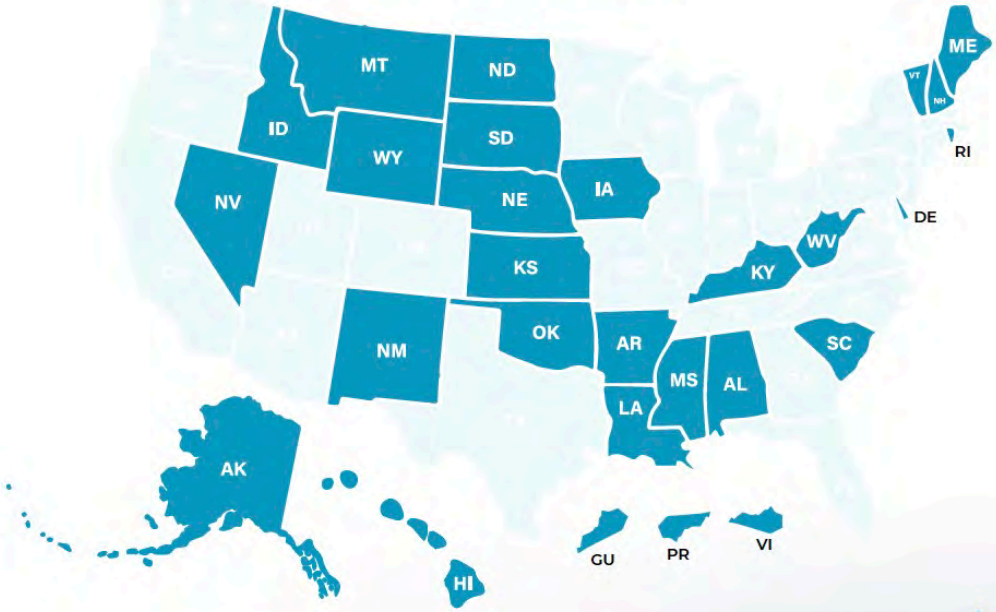


DOC TECHNOLOGY HUBS

Locations of Hispanic-serving Institutions in U.S.



EPSCOR states in blue



DOC TECHNOLOGY HUBS

EDA regions were organized many years ago to serve geographic administrative convenience when EDA was principally involved in public works programs at state and local levels. As this analysis shows, from an innovation capacity standpoint, there is wide variation among the EDA regions in the number of universities in each region, level of university R&D funding, number of EPSCOR states, and presence of HBCUs and HSIs.

That EDA regions are quite heterogeneous in these R&D factors should not be surprising since they were developed for federal administrative convenience, not based on existing technology clusters. Nevertheless, the EDA regions should give institutions a framework to consider when selecting other states for possible partners. For example, Arizona and New Mexico, which share a common border and have historic regional ties, are in different EDA regions and will be competing for technology hub funding within their individual state clusters.

EDA Administrative Regions

DOC TECHNOLOGY HUBS

Atlanta Regional Office (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)

Austin Regional Office (Arkansas, Louisiana, New Mexico, Oklahoma, Texas)

Chicago Regional Office (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)

Denver Regional Office (Colorado, Iowa, Kansas, Missouri, Montana, North Dakota, Nebraska, South Dakota, Utah, Wyoming)

Philadelphia Regional Office (Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New Your, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia)

Seattle Regional Office (Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Washington)

Analysis of EDA Administrative Regions:

EDA Region	Number of R1 Institutions	Number of R2 Institutions	Number of AAU Institutions	R & D Higher Education Expenditures (millions)*	EPSCOR States	HBCUs	HSIs
Atlanta	27	22	6	$12,379	4	61	28
Austin	18	17	4	$8,174	4	20	121
Chicago	18	22	11	$12,013	None	2	29
Denver	17	13	6	$6,586	6	2	17
Philadelphia	46	32	21	$26,636	6	16	64
Seattle	20	21	13	$15,347	4	None	201

**Research and Development Higher Education Expenditures from NSF Science and Engineering State Profiles, 2020. R1 = Carnegie Classification Universities with Very High Level of R & D Expenditures; R2 are Universities with High Level of R &D Expenditures and AAU is an association of the leading public and private research-intensive universities in North America*

DOC TECHNOLOGY HUBS

EDA UNIVERSITY CENTERS

The EDA administers a University Center program to enable institutions of higher education and consortia of these institutions to leverage university assets to build regional economic ecosystems. These Centers can be helpful for regions to connect with technology assets in a particular state or region.

Map of University EDA Centers

For list of University EDA centers by state see eda.gov/programs/university-centers/current-list/

MANUFACTURING EXTENSION PARTNERSHIP

A major impetus for the CHIPS and Science Act is to support the growth of manufacturing in the U.S. Each state has at least one Hollings Manufacturing Extension Partnership (MEP) designed to assist small and medium sized manufacturers in upgrading technologies and improving processes. The MEP program is scheduled for a major boost of $1.5 billion under the legislation and regions should be certain to involve their local MEP members in developing a regional strategy for a technology hub.

DOC TECHNOLOGY HUBS

State List of MEP National Network Members

www.nist.gov/mep/centers/quick-list

SMALL BUSINESS DEVELOPMENT CENTERS (SBDCS)

Support for small businesses is another focus of the CHIPS and Science Act. SBDCs across the U.S., supported by the U.S. Small Business Administration (SBA), deliver professional business advising and technical assistance to existing small businesses and pre-venture entrepreneurs. SBDCs in your region should be part of any consortia being developed.

sba.gov/local-assistance/resource-partners/small-business-development-centers-sbdc#section-header-4

DOC TECHNOLOGY HUBS

The EDA recently completed the place-based $1 billion Build Back Better Regional Challenge that gives some insight into how future DOC technology hub competitions might look like. It is important to note the EDA was not acting under the general hub competition rules that Congress has established in the CHIPS and Science Act, but the competition provides a roadmap of technologies and regional approaches used.

The premise of the Build Back Better Challenge is to create coalitions of businesses, universities, and community-based organizations to develop nationally critical industry clusters using five-year grants ranging from $25 million to $65 million over five years.

The Brookings Institution has an excellent overview of the Build Back Better Regional Challenge program through a new posting: The Future of Place Based Economic Policy: Early Insights from the Build Back Better Regional Challenge. brookings.edu/wp-content/uploads/2022/11/EDA-BBBRC_final.pdf

An EDA overview of the grant winners in the Build Back Better program is on the next page:

DOC TECHNOLOGY HUBS

U.S. ECONOMIC DEVELOPMENT ADMINISTRATION

BUILD BACK BETTER REGIONAL CHALLENGE E·D·A

AMERICAN RESCUE PLAN

BUILD BACK BETTER REGIONAL CHALLENGE AWARDEES FACT SHEET

EDA's $1 Billion Build Back Better Regional Challenge Selects 21 Coalitions to Implement Strategies for Regional Economic Transformation

On September 2nd, the Biden-Harris Administration announced awards for 21 regional coalitions that were finalists in the Build Back Better Regional Challenge (BBBRC). This $1 billion grant competition, created through the American Rescue Plan Act, challenged communities to identify a set of interconnected investments that, together, could transform their local economy, expand economic opportunity and competitiveness, and create thousands of good jobs.

BBBRC awardees will each receive between $25 million and $65 million to fund 123 individual strategic projects to advance economic strategies benefiting 24 states. This federal funding is matched by more than $300 million of local investment and will leverage support from over 450 private sector and 27 labor unions or workers organizations.

These 21 coalitions were chosen from a highly competitive group of 60 finalists that each received $500,000 seed grants after being selected from 529 applicants. The selected portfolio represents the diversity of our nation and the belief that, with the right resources and opportunities, all communities can compete in the economy of the future.

Key

ADVANCED MOBILITY and AEROSPACE · CLEAN ENERGY · NATURAL RESOURCE and AGRICULTURE · STATES SERVED

BIOTECHNOLOGY and HEALTH · INDIGENOUS FINANCE · NEXT GENERATION MANUFACTURING

Icons mark the lead institution of awardees

BBBRC is investing in emerging industries across the economy, including:

- 5 biotechnology and health clusters
- 4 advanced mobility hubs, from autonomous and electric vehicles to advanced aerospace manufacturing
- 4 clusters reinventing their natural resource and agricultural industries
- 4 communities developing next-generation manufacturing clusters
- 3 coalitions driving key segments of the clean energy economy
- 1 multi-state Tribal coalition growing an Indigenous finance industry

These investments will fund complementary, locally-led projects and create a coordinated regional economic strategy that is far greater than the sum of the parts. They include approximately:

- $300 million to accelerate innovation in emerging technologies
- $270 million to help workers access new job opportunities and job training
- $140 million to increase new business growth and entrepreneurial activity
- $110 million to construct critical enabling infrastructure and attract private investment
- $100 million to help small and midsized businesses adopt new processes and enter new markets
- $50 million to sustain regional governance and strengthen cluster development

And those dollars are reaching communities across the United States:

123 selected projects serving 801 counties across 24 states

- 236 counties that are fully rural
- 136 persistent poverty counties
- 106 counties that are home to largely underserved populations
- 121 counties that include Tribal areas, with $87 million funding two primarily Tribal coalitions
- Over $150 million invested in coal communities, as part of EDA's $300 million Coal Community Commitment

National Science Foundation Technology Hubs

The NSF has established a new program called the Technology, Innovation and Partnerships (TIP) Directorate that will focus on supporting "use-inspired" R&D. This is the first new directorate at NSF in more than 30 years. TIP's mission is to foster innovation and technology ecosystems, establish translation pathways and develop partners to engage the nation's diverse talent pools. beta.nsf.gov/tip/latest

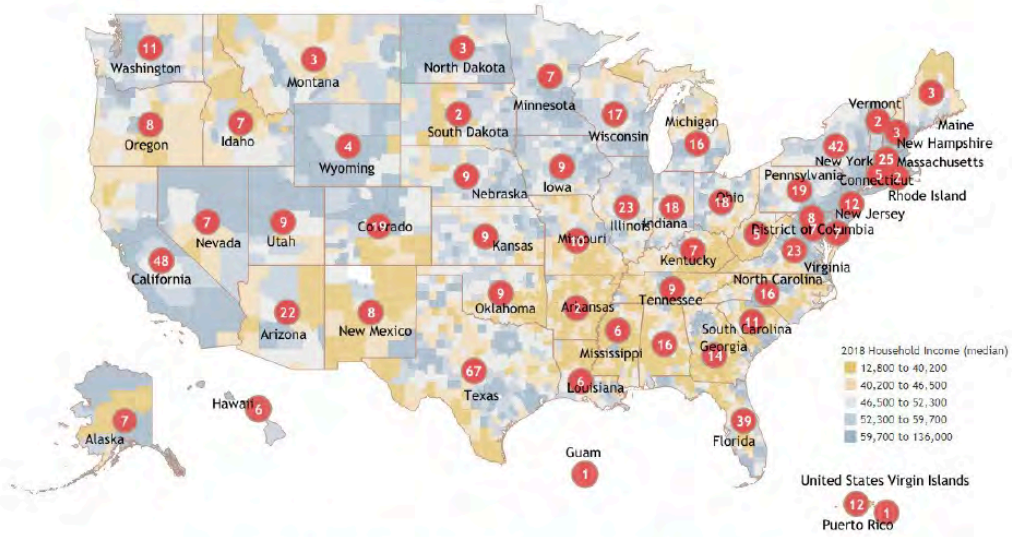
The flagship program for TIP is the NSF Regional Innovation Engines program. NSF used part of its current budget to launch the NSF Engines program, but growth of the program will require Congress, through the CHIPS and Science Act, to fully fund TIP at $6.5 billion to launch a full set of NSF Engines projects and related efforts to accelerate applied research projects into economic growth. This program represents a change in NSF research focus from basic laboratory work to regional innovation as directed by Congress in the CHIPS and Science Act.

Besides scientific merit, TIP is to consider the ability to foster partnerships among regional stakeholders and increase participation from historically underrepresented populations in STEM. There is an emphasis on expanding funding into regions that have not historically

NSF TECHNOLOGY HUBS

received much NSF funding, yet NSF does not have existing regional divisions that the EDA administers, so more national ecosystem partnerships might be developed through NSF.

NSF, through the limited start of the NSF Engines program, has attracted over 700 concept outlines. Uniquely for NSF solicitations, these proposals are being shared with communities to help develop partnerships with others in their region:



beta.nsf.gov/funding/initiatives/regional-innovation-engines/find-potential-nsf-engines

NSF expects Regional Engines awards to be announced in 2023 with future solicitations depending on additional funding for NSF's TIP program. Overall, NSF is scheduled for more than a $80 billion increase in funding under CHIPS and Science Act, making NSF one of the largest federal research agencies with increased appropriations scheduled should Congress fully fund the programs authorized.

Department of Energy Technology Hubs and other DOE provisions

The DOE is a major winner in the CHIPS and Science Act with an increase of over $67 billion in base funding.

The DOE Regional Clean Energy Partnerships program is a new initiative to spur clean energy innovation. This program comes with authorization of $250 million over five years to fund up to $10 million in partnerships and innovations in the clean energy-sector. The DOE is currently engaging in new prize competitions for university students developing clean energy technology using existing budget authority: energy.gov/technologytransitions/energytech-university-prize-2022-competition

Another provision in the CHIPS and Science Act creates the Foundation for Energy Security and Innovation (FESI) to support DOE and advance collaboration across sectors to accelerate commercialization of energy technologies. This Foundation would help regions with DOE national laboratories to connect on a business-friendly basis to create increased local impact and help the U.S. become more energy competitive. A parallel provision gives DOE labs authority to create entrepreneurial leave policies for DOE scientists and engineers to explore creating startup energy companies.

DOE TECHNOLOGY HUBS

Other funding in the CHIPS and Science Act provides new research facilities at DOE regional labs. Note that DOE National Labs can be partners on NSF Regional Engine proposals.

Accordingly, regions with DOE National Labs should be looking to increase local involvement and partnerships with these facilities through new programming and investment in these facilities.

Office of Science Laboratories

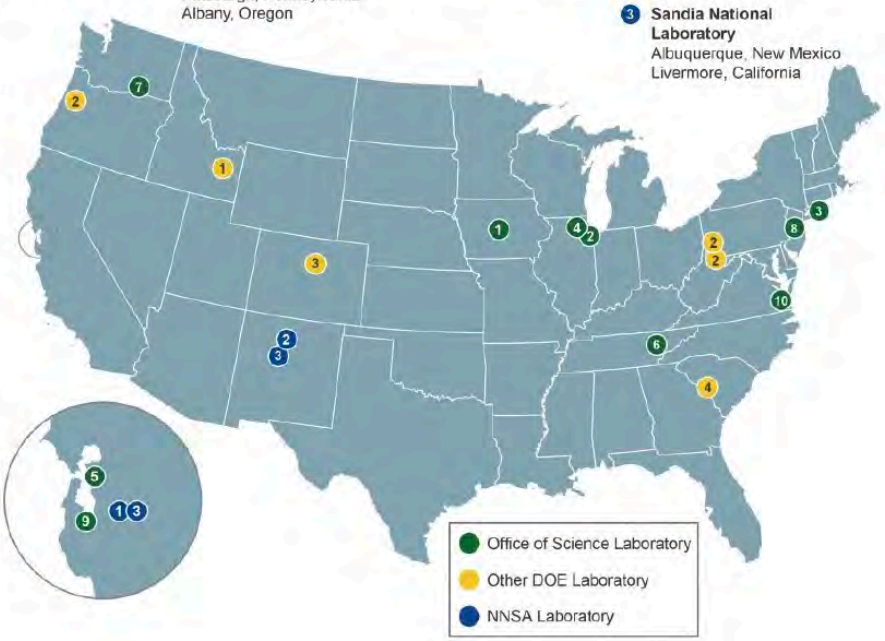
1. **Ames Laboratory**
   Ames, Iowa
2. **Argonne National Laboratory**
   Argonne, Illinois
3. **Brookhaven National Laboratory**
   Upton, New York
4. **Fermi National Accelerator Laboratory**
   Batavia, Illinois
5. **Lawrence Berkeley National Laboratory**
   Berkeley, California
6. **Oak Ridge National Laboratory**
   Oak Ridge, Tennessee
7. **Pacific Northwest National Laboratory**
   Richland, Washington
8. **Princeton Plasma Physics Laboratory**
   Princeton, New Jersey
9. **SLAC National Accelerator Laboratory**
   Menlo Park, California
10. **Thomas Jefferson National Accelerator Facility**
    Newport News, Virginia

Other DOE Laboratories

1. **Idaho National Laboratory**
   Idaho Falls, Idaho
2. **National Energy Technology Laboratory**
   Morgantown, West Virginia
   Pittsburgh, Pennsylvania
   Albany, Oregon
3. **National Renewable Energy Laboratory**
   Golden, Colorado
4. **Savannah River National Laboratory**
   Aiken, South Carolina

NNSA Laboratories

1. **Lawrence Livermore National Laboratory**
   Livermore, California
2. **Los Alamos National Laboratory**
   Los Alamos, New Mexico
3. **Sandia National Laboratory**
   Albuquerque, New Mexico
   Livermore, California



DOE TECHNOLOGY HUBS

Other provisions in CHIPS and Science Act of interest to technology development and economic development communities:

The CHIPS and Science Act made a bipartisan commitment to fund research, domestic manufacturing, and regional innovation. The Act calls for an increase of $16 billion in its base budget of NSF core science funding, $12.9 billion in base budget funding for the DOE Office of Science, and $2.8 billion in base budget science and manufacturing funding for the National Institute of Standards and Technology (NIST).

Other provisions include $3.1 billion in proposed funding for Planning and Capacity Building awards of $3 million for each institution of higher education to establish or expand technology transfer offices, cover patent costs, develop private sector partners and training for entrepreneurial students and faculty (especially for universities that haven't established tech transfer offices). This provision was promoted by AUTM, a national association of tech transfer and commercialization professionals.

Advocacy for Federal Funding for Science Programs in CHIPS and Science Act:

The Appropriations Committees in Congress play an outsized role in deciding which programs get funded once they are authorized by Congress. Unless the Appropriations Committees fund the Science portions of the CHIPS and Science Act, the programs will not advance.

It is critical that members of Congress hear from their local, state or district members of the importance of funding the Science portion of the CHIPS and Science Act.

In 2007 and 2010, Congress passed similar legislation called the COMPETES Act to fund growth in scientific enterprises estimated at $77 billion over 15 years, but the funding did not come through. Only one of the 28 new COMPETES programs was ever fully funded. Listed at links below are the current members of the U.S. Senate and House Appropriations Committees, but membership will change with the new Congress in January 2023.

Members of Senate Appropriations Committee: appropriations.senate.gov/about/members

Members of House Appropriations Committee: appropriations.house.gov/about/membership

Fortunately, support in Congress for R&D funding and U.S. technological competitiveness is largely bipartisan. In November 2022, 15 Senators released a letter calling on Congress to approve down payments on new initiatives in the FY 2023 budget such as $1.5 billion for DOC Tech Hubs and $1.5 billion for NSF TIP Directorate among other CHIPS and Science programs.

U.S. Senators letter in support of CHIP and Science Act Appropriations
commerce.senate.gov/2022/11/cantwell-bipartisan-group-of-senators-tell-appropriators-america-s-competitive-future-depends-on-fully-funding-chips-science-act

DOE TECHNOLOGY HUBS

Groups such as the American Association for Advancement of Science (AAAS) aaas.org and the Information Technology and Innovation Foundation (ITIF) itif.org have persuasively argued for increased R&D spending in the U.S. to advance knowledge and improve U.S. economic competitiveness. The SSTI Innovation Advocacy Council also is a leading voice in supporting state-based technology-led economic development policies at the federal level. ssti.org

The fact that 529 communities in the U.S. applied for Build Back Better Challenge EDA grants and 729 regions submitted NSF Regional Engines concept applications from all 50 states vividly demonstrates national interest in technology hubs.

With the nationwide involvement of regions competing for science-based technology hubs, not just traditional science centers such as Boston and San Francisco, perhaps this will help push Congress in upcoming years to annually support funding for the science and technology initiatives in the CHIPS and Science Act.

Conclusion and Recommendations

CONCLUSION

The Science portion of the CHIPS and Science Act is an unprecedented opportunity to build communities of innovation in all regions across the U.S. Yet none of this will matter if yearly appropriations for these programs don't follow.

It is critical for communities of innovation to work with their local, university and industry federal relations offices, local state Congressional delegations and national groups, such as the SSTI Innovation Advocacy Coalition, to obtain federal support and funding for science.

RECOMMENDATIONS

Securing funding from other partners to support building regional technology hubs is important, whether from the state, private sector, foundation, county, or city resources since some of the hubs need match funding for the federal support.

If you don't have an existing regional coalition, begin to reach out to other stakeholders. Some examples are:

CONCLUSION AND RECOMMENDATIONS

Oklahoma Innovation District in Oklahoma: okcinnovation.com

Connected DMV in the DC/Maryland/Virgina region: connecteddmv.org

Bio Health Innovation also in the DC/Maryland/Virgina region: biohealthinnovation.org/

University City Science Center with stakeholders from Pennsylvania, Delaware, and New Jersey: sciencecenter.org

NYC Builds Bio with connections to Connecticut, New Jersey, and Greater NY bio ecosystems: nancyjkelley.com/case/nyc-builds-bio

Because SBIR and STTR programs are funded as a percentage of overall R&D funding in each agency, the CHIPS and Science Act should increase SBIR and STTR opportunities for small technology business funding. Ensure you have technical assistance programs in your region to support SBIR and STTR applicants.

Addressing workforce needs is an important element of any technology hub. Make sure you work with your local workforce support groups, including labor unions. The EDA Good Jobs Challenge provides ideas on what other regions have used to build workforce coalitions: eda.gov/arpa/good-jobs-challenge

Make sure you are using data to assess county level economic infrastructure: The Economic Development Capacity Index (EDCI), a new tool developed through a partnership between EDA and Argonne National Laboratory, uses publicly available data to assess critical elements that contribute to a county's overall economic development capacity, including prosperity, innovation, entrepreneurship, and quality of life: anl.gov/dis/economic-development-capacity-index

In addition, The Economic Innovation Group (EIG) recently released a novel Innovation Hubs Index that balances economic need with innovation potential to inform the selection of 20 regional Innovation Hubs authorized in the CHIPS and Science Act funded by DOC. eig.org/innovation-hubs

Other ideas on competing for technology hub funding are available in this AURP Blog Post: aurpceo.blogspot.com/2021/07/endless-frontier-act-update.html

Finally, the appendix includes a deeper dive into the EDA regions; descriptions of organizations that can be helpful in building regional ecosystems; and a representative list of books and publications discussing geography of jobs and innovation and federal support policies in the U.S.

Brian Darmody is Chief Strategy Officer for AURP and former CEO. Previously he worked at UMD College Park and University System of Maryland in a variety of economic development and research administration roles, and before then was a staff member for a U.S Congress-woman and member of Maryland House of Delegates and served in the U.S Health Care Financing Administration Office of Attorney Advisor.

Appendix

APPENDIX 1

Select organizations working to develop communities of science and technology innovation and economic growth through regional, state, local, and institutional partnerships:

National organizations:

AURP: AURP, a global nonprofit, represents research parks and innovation districts sponsored by universities, hospitals, government labs and cities, plus the firms planning, building, and managing these communities of innovation. AURP includes members supporting bio research, air and space technologies and clean energy through its technology groups. AURP hosts its Bio Health Caucus in Boston in June 2022 in conjunction with BIO and announced its annual conference in fall 2023 in Delaware. aurp.net

SSTI: SSTI, a national nonprofit, offers information and services that are needed to succeed in today's innovation economy. SSTI conducts research on common performance standards, identifies best practices and analyzes policies affecting the innovation economy. SSTI holds an annual conference each year. ssti.org

UEDA: The University Economic Development Association (UEDA) connects its members—higher education institutions, private sector businesses, and economic development organizations — to resources that facilitate economic growth in their communities. Many EDA University Centers are UEDA members. universityeda.org

AUTM: AUTM is the non-profit leader in efforts to educate, promote and inspire professionals to support the development of academic research that changes the world and drives innovation forward. Their community is comprised of more than 3,000 members who work in more than 800 universities, research centers, hospitals, businesses, and government organizations around the globe. AUTM's international conference is in Austin, Texas, February 19-22, 2023. autm.net

TECNA: The Technology Council of North America, TECNA, represents approximately 60 IT and technology trade organizations that, in turn, represent more than 22,000 technology related companies in North America and empower regional technology organizations. tecna.org

UIDP: UIDP is a solutions-oriented organization where its members identify issues impacting university-industry relations and opportunities to develop new approaches to working together. UIDP is hosting a special pre-conference for HBCUs, industry, government, nonprofits, and other institutions in Nashville April 18-19, 2023, before the start of its national UIDP conference. uidp.org

APPENDIX

BIO Council of State Bioscience Associations (CSBA): The Council of State Bioscience Associations (CSBA) is a confederation of state-based, non-profit trade organizations each governed by its own board of directors and affiliated with BIO. The common mission of CSBA is to promote public understanding and to advocate for public policies that support the responsible development of the bioscience industry. Five of the EDA Build Back Better winners were in the bioscience sector. BIO is holding its international convention in Boston, June 5-8, 2023. AURP will be holding its Bio Health Caucus in Boston, prior to BIO, and will feature EDA bio Build Back Better winners. bio.org/csba and aurp.net

NACRO: The Network for Academic Corporate Relations Officers (NACRO) serves as a professional development community for individuals working in higher education and tasked with facilitating collaboration with industry. Over time the organization has grown and now includes members from industry as well as higher education. The NACRO National Conference takes place July 11-13, 2023, in Portland Oregon. nacrocon.org

IEDC: The International Economic Development Council (IEDC) is a non-profit, non-partisan membership organization serving economic developers. With more than 5,000 members, IEDC is the largest organization of its kind. Economic developers promote economic well-being and quality of life for their communities by creating, retaining, and expanding jobs that facilitate growth, enhance wealth, and provide a stable tax base. IEDC administers a $30 million grant from EDA to establish and operate a nationwide Economic Recovery Corps program. IEDC is holding its international conference September 17-20, 2023, in Dallas, Texas. iedconline.org

ITIF: The Information Technology Innovation Foundation (ITIF) is an independent nonprofit, nonpartisan research, and education institute. ITIF's mission is to formulate, evaluate, and promote policy solutions that accelerate innovation and boost productivity to spur growth, opportunity, and progress. itif.org

APLU Commission on Economic and Community Engagement (CECE): A Commission of the Association of Public and Land Grant Universities, CECE convenes senior university economic development and community engagement administrations, presidents and chancellors, provosts, senior research officers, Cooperative Extension leaders, government affairs administrators focused on talent, innovation and place. plu.org/members/commissions/economic-and-community-engagement

FLC: The Federal Laboratory Consortium for Technology Transfer (FLC) is the Congressionally chartered, nationwide network of over 300 federal laboratories, agencies, and research centers, that fosters commercialization, best practices strategies and opportunities for accelerating federal technologies out the labs and into the marketplace. The FLC national meeting is in Cleveland, Ohio, and will include a session on federal labs connecting with local resources for development of innovation districts. federallabs.org

APPENDIX

International Organizations:

UIIN: The University Industry Innovation Network (UIIN) is a knowledge leader on university-industry engagement, entrepreneurial and engaged universities and knowledge transfer. UIIN is dedicated to supporting its global community of university and industry professionals to advance the future of higher education and its impact on society through its community of more than 80 organizations and more than 500 individual members. UIIN is holding its international conference in Budapest on May 9-11, 2023. uiin.org

IASP: The International Association of Science Parks and Areas of Innovation (IASP) is an association of innovative ecosystems worldwide. IASP's mission is to be the global network for science parks, innovation districts and other areas of innovation. IASP hosts its conference in Luxembourg, September 12-15, 2023. iasp.ws

Global Institute on Innovation Districts: The Global Institute on Innovation Districts is a global-reaching non-profit organization dedicated to conducting independent and practice-oriented research on geographies of innovation emerging primarily in cities and urbanizing areas. The Global Institute is comprised of researchers, practitioners, and policy members working together to help shape the broader research and impact agenda. giid.org

APPENDIX 2

Detailed EDA Regions Analysis: Notes: HBCUs: Historically Black Colleges and Universities; HSIs: Hispanic Serving Institutions and Special Focus Research Institutions are mostly university teaching hospital systems that are administered outside of principal research university under Carnegie Commission classification.

Atlanta Regional Office (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)

Carnegie R1 Universities: 27 | Carnegie R2 Universities: 22 | AAU Universities: 6 | EPSCOR States: 4 | Higher Education R and D Expenditures: $12,379 (in millions) | HBCUs: 61 | HSIs:28 Special Focus Research Institutions: 2

Austin Regional Office (Arkansas, Louisiana, New Mexico, Oklahoma, Texas)

Number of Carnegie R1 Universities: 18 | Number of Carnegie R2 Universities: 17
Number of AAU Universities: 4 | EPSCOR States: 4 | HBCUs: 20 | HSIs:121
Higher Education R and D Expenditures: $8,174 | Special Focus Research Institutions: 8

Chicago Regional Office (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)

Carnegie R1 Universities: 18 | Carnegie R2 Universities: 22 | AAU Universities: 11
EPSCOR States: none | Higher Education R and D Expenditures: $12,013 | HBCUs: 2 | HSIs: 29
Special Focus Research Institutions: 2

APPENDIX

Denver Regional Office (Colorado, Iowa, Kansas, Missouri, Montana, North Dakota, Nebraska, South Dakota, Utah, Wyoming)

R1 Universities: 17 | Carnegie R2 Universities: 13 | AAU Universities: 6 | EPSCOR States: 6
Higher Education R and D Expenditures: $6,586 (in millions) | HBCUs: 2 | HSIs: 17
Special Focus Research Institutions: 1

Philadelphia Regional Office (Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New Your, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia)

Carnegie R1 Universities: 46 | Carnegie R2 Universities: 32 | AAU Universities: 21
EPSCOR States: 6 | Higher Education R and D Expenditures: $26,636 (in millions) | HBCUs: 16
HSIs: 64 | Special Focus Research Institutions: 9

Seattle Regional Office (Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Washington)

Number of Carnegie R1 Universities: 20 | Number of Carnegie R2 Universities: 21
Number of AAU Universities: 13 | EPSCOR States: 4 | Higher Education R and D Expenditures: $15, 347 (in millions) | HBCUs: none | HSIs: 201 | Special Focus Research Institutions: 2

APPENDIX 3: FOR FURTHER READING

Gruber, Jonathan and Johnson, Simon, **Jump Starting America**, Public Affairs Press, 2019

Moretti, Enrico, **New Geography of Jobs**, Harper Collins, 2012

Case, Steve, **Rise of the Rest: How Entrepreneurs in Surprising Places are Building the New American Dream**, Simon and Schuster, 2022

Spirou, Costas, **Anchoring Innovation Districts**, Johns Hopkins University Press, 2021

Darmody, Brian, **Power of Place**, **Power of Place 2.0**, and **Creating Life Science Communities of Innovation in the U.S.**, Association of University Research Parks, 2008, 2021 and Journal of Commercial Biotechnology, March 2021, vol. 26, all available at aurp.net/publications

Building Communities of Innovation™

AURP MISSION

Fostering innovation, commercialization and economic growth in a global economy through university, industry and government partnerships.

Since 1986, AURP has been the pioneer guiding leaders to cultivate communities of innovation at global anchor institutions such as universities, municipalities, federal labs, and corporations. AURP is a non-profit organization that promotes the development and operations of research parks that foster innovation, commercialization and economic competitiveness in a global economy through collaboration among universities, industry and government.

www.AURP.net

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College Park, MD

Chief Strategy Officer
Brian Darmody
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Appendix 9:

Innovation District P3 Slide Deck: The New 'Town Gown' Partnerships, P3 Higher Education Summit, October 2021

Introduction

TODAY'S PANELISTS

Jeffrey Turner
Brailsford & Dunlavey

Reed Kawahara
UC Davis

Rodolfo Torres
UC Riverside

Brian Darmody
AURP

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01

Innovation Districts History & Trends

Innovation Districts History

THE WORLD'S FIRST RESEARCH PARK: STANFORD UNIVERSITY: 1951

Innovation Districts History

2021 P3 Higher Education Summit 5

Innovation Districts History

BEFORE THERE WERE THE INNOVATION DISTRICTS WE KNOW TODAY

Ancient Bazars in Middle East

Birthplace of London Stock Exchange: Jonathan's Coffee House

2021 P3 Higher Education Summit 6

Innovation Districts History

KNOWLEDGE-BASED URBAN DEVELOPMENT (KBUD) PARADIGM

Old model:

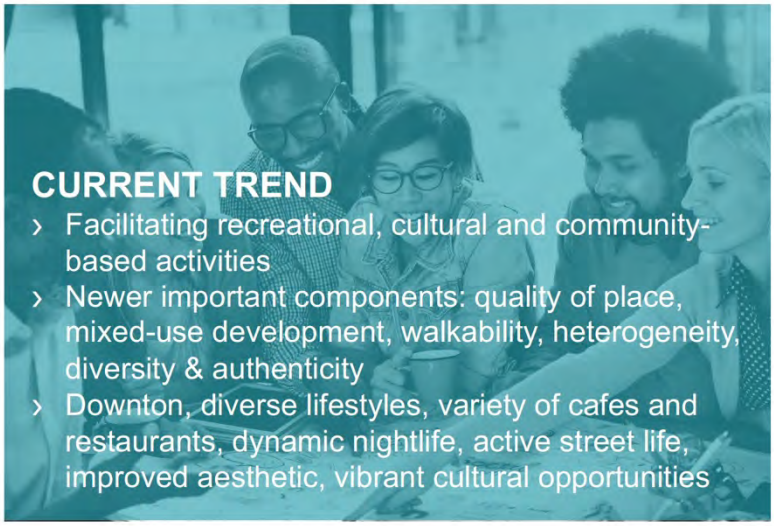
- Hub for commerce, research and education
- Focus only on occupational & industrial development

Current trend:

- Facilitating recreational, cultural and community-based activities
- Newer important components: quality of place, mixed-used development, walkability, heterogeneity, diversity & authenticity
- Downtown, diverse lifestyles, variety of cafés and restaurants, dynamic nightlife, active street life, improved aesthetic, vibrant cultural opportunities

Innovation Districts History

KNOWLEDGE-BASED URBAN DEVELOPMENT (KBUD) PARADIGM



Innovation Districts History

KNOWLEDGE-BASED URBAN DEVELOPMENT (KBUD) PARADIGM

Why the shift?

- Peculiar profile of knowledge-based workers
  - Seek authentic scenes, amenities & quality of living, not just lucrative occupation
  - Prefer vibrant, urban locations, where one can socialize with like-minded people & diverse communities
- Need for informal networks
- Change in nature of creative/smart/innovative work
  - Requires new configurations of place with blurred boundaries between work & daily activities
  - Flexible working hours / work environment

State of the P3 Higher Education Industry 9

Today's Innovation Districts

DNA OF AN INNOVATION DISTRICT OF KNOWLEDGE COMMUNITY

University Basic Research + **Commercial** Applied Research = **Knowledge Community**

Ideas Practice Integration

2021 P3 Higher Education Summit 10

Today's Innovation Districts

WHAT MAKES UP AN INNOVATION DISTRICT

2021 P3 Higher Education Summit 11

Innovation Ecosystem Asset Framework

ASSESSING YOUR INNOVATION DISTRICT: A HOW-TO GUIDE

BROOKINGS

Town-Gown

CRITICAL MASS

A robust economic activity hub with a density of innovation assets, **well-connected within the region and beyond**

INNOVATION CAPACITY

Focal point of research, translated into new products and services

Distinctive advantages leveraged & aligned to spur innovation

DIVERSITY & INCLUSION

Intentional strategies and policies and programs tailored for impactful economic opportunity

QUALITY OF PLACE

Attract diverse firms and people, support collisions, accelerate innovation outcomes

Options for connecting people both *to* the hub and *within* the hub

LEADERSHIP

Shared, sustained commitment by leaders of key organizations to drive change

2021 P3 Higher Education Summit 12

Innovation Ecosystem Asset Framework

ASSESSING YOUR INNOVATION DISTRICT: A HOW-TO GUIDE

RTI INTERNATIONAL

CRITICAL MASS	SOCIAL CONNECTIONS	GOVERNANCE & OPERATIONS	COMMON CHALLENGES
Spaces to create & nurture connections	Events that strengthen links	Place-based strategies integrated with distinct policies & programs that help innovation hubs flourish	Sparking innovation-led economic dev
Revitalization of existing facilities	**Integration of networks between people of different contexts**	Flexible master plan	**Ensuring hub is conducive to change interactions and community engagement**
Conversion of private spaces to public	Culture of flexibility	Redirect power, financing, responsibility to hub level	**Making hub truly inclusive**

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FEDERAL FUNDING & LEGISLATION

AMERICAN RESCUE PLAN – PHASE II FUND OPPORTUNITIES

2021 P3 Higher Education Summit 14

FEDERAL FUNDING & LEGISLATION

AMERICAN RESCUE PLAN – PHASE II FUND OPPORTUNITIES

Notice of Funding Opportunity Available on Grants.gov	July 22, 2021
Phase 1	
Application for Phase 1 Concept Proposals Opens	July 22, 2021
Concept Proposals are Due	October 19, 2021
Concept Proposal Finalists Selected and Technical Assistance Grants Awarded	December 2021
Phase 2	
Full Applications are Due (Must be selected as a finalist in Phase 1 to submit a Phase 2 Full Application)	March 15, 2022
Phase 2 Awards Announced	No later than September 2022

2021 P3 Higher Education Summit

Project must be completed by **May 31, 2027 –** 4.5 years after award

FEDERAL FUNDING & LEGISLATION

OPTIONS TO CONSIDER IF YOUR REGION WINS OR DOESN'T WIN BUILD BACK BETTER FUNDS

1. **If you don't win Phase 1 funds**, EDA and other federal funding agencies have programs to advance your region

2. **If selected for Phase 1 funding**, you may identify new or modified implementation projects in Phase 2 application how the newly identified project will support the regional growth cluster

3. **Not selected for Phase 2 funding but you have $500K in BBB planning funds?** The planning funding can be used to mature the projects for future funding opportunities at EDA to increase regional economic competitiveness

2021 P3 Higher Education Summit 16

02

UC Riverside OASIS Hub

Innovation District P3s –The New "Town-Gown" Partnerships
Panel Presentation
October 25, 2021

OASIS: Opportunities to Advance Sustainability, Innovation, and Social Inclusion

Rodolfo H. Torres
Vice Chancellor for Research & Economic Development
University of California – Riverside

What is OASIS ?

OASIS is a public-private partnership led by the University of California Riverside to promote regional economic development in the Inland Empire through solutions-driven applied research, innovation, entrepreneurship, and workforce development around sustainability, clean technology, and social inclusion.

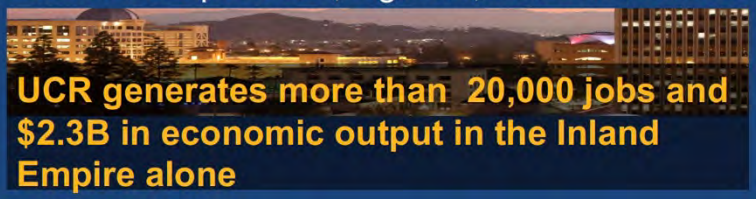
The OASIS Hub will

- leverage UCR research strengths in agriculture, environment, health, & community outreach
- build on the existing interaction between UCR, the city and county of Riverside and local industries
- serve as a home for centers and community programs
- incubate start-up companies and provides entrepreneurial training
- strengthen partnerships with workforce initiatives
- welcome and inspire the next generation of diverse research and business leaders
- provide internships and jobs opportunities for students

UC RIVERSIDE
Research and Economic Development

The future of Southern California is the Inland Empire

- Projected to grow its population 44% by 2050
- Recognized for excellence in air quality research, agriculture, natural resources, clean transportation, climate change, community health
- Social mobility, inclusion, and equity are hallmark features of our public higher education institutions
- Diverse population, diverse geography, diverse climate, diverse natural resources
- Nascent tech start-up ecosystem and multifaceted support for innovation
- Epicenter of the transportation, logistics, and warehouse industry



UC RIVERSIDE
Research and Economic Development

Recent regional infrastructure developments

California Air Resources Board (CARB)
- $420M investment in the region
- ~450 high-paying jobs

Citrus industry BSL-3
- $8M facility
- UCR research to cure Huanglongbing (HLB) citrus disease

UCR Multidisciplinary Research Building
- $150M LEED Platinum-certified facility
- Only wet-lab incubator in the IE with capacity for 15 companies

UC RIVERSIDE
Research and Economic Development

Phase I : OASIS Clean Tech Park

Leverage the presence of CARB and already existing synergy with local stakeholders by co-locating

- Center for Environmental Research & Technology (CE-CERT)
- University Extension
- Startup Incubator and Accelerator Space
- Partners Companies

Clean Transportation & Infrastructure

Community Health & Health Disparity

Clean Energy & Fuels

Agriculture Technology & Food Security

Natural Resource Management (Air, Water, Soil)

and more…

UC RIVERSIDE Research and Economic Development

Location

BRAILSFORD & DUNLAVEY | Perkins&Will

- Site within the city Innovation District and Opportunity Zone
- In close proximity to CARB and UCR
- 8+ acres
- Capacity for 300,000 - 400,000 sq ft of space
- Already received $15M from the state of California

UC RIVERSIDE Research and Economic Development

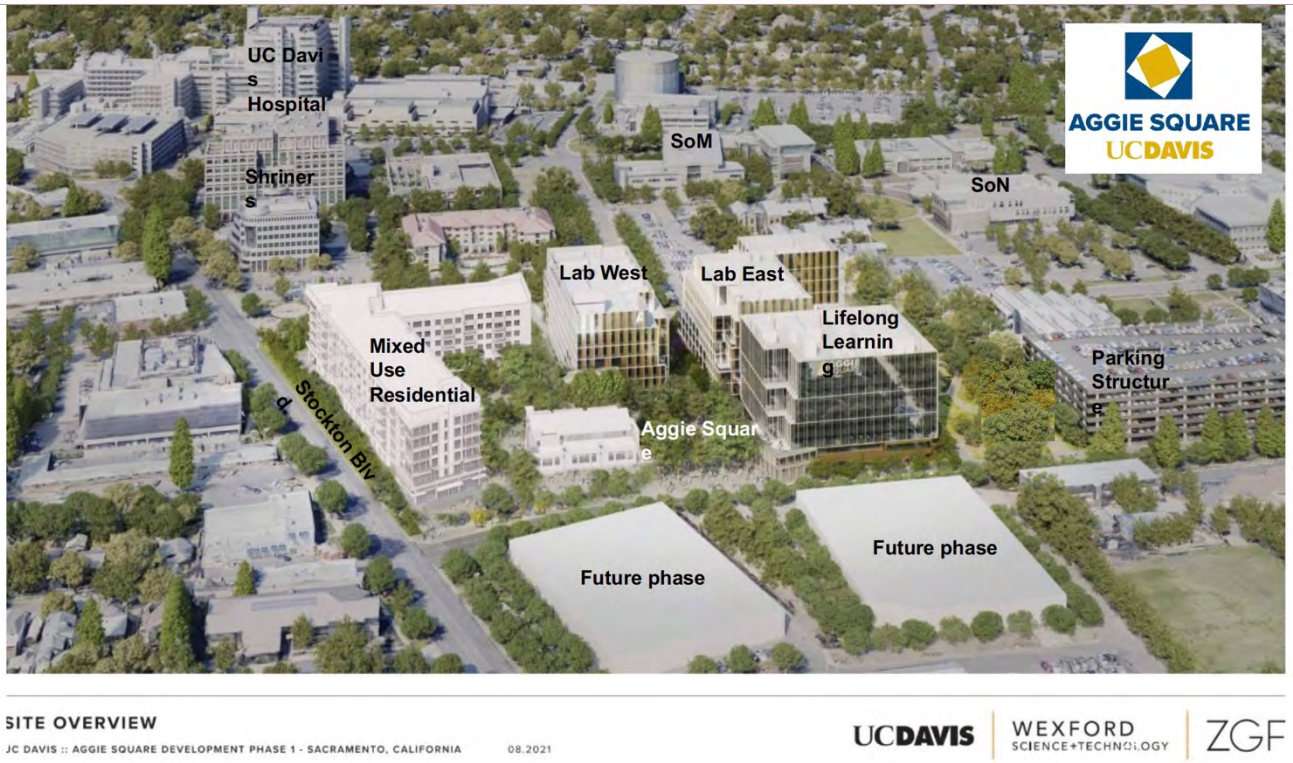
Partners, supporters, and synergetic initiatives

Solar MAX Technology Inc.
Regions Rise Together
Republic
OPPORTUNITY ZONE
Greater Riverside Chambers of Commerce
The Chamber...building a stronger local economy
Governments SANBAG Working Together
RCCD
EXCITE
California Citrus Research Foundation
South Coast AQMD
Western Municipal Water District
County of Riverside
City of Riverside
Riverside Innovation District
Wonderful citrus
CVAG
San Bernardino County
SoCalGas
WRCOG
RCTC Riverside County Transportation Commission
KIGT
Coalition for Clean Air
Murrieta Innovation Center
SiLiON
Xtelligent
Lamplighter Energy
iecf
SCAG
Eurosemillas
GROW Riverside
UC Riverside Research and Economic Development

03

UC Davis Aggie Square


UC Davis Hospital
Shriners
Educ. Bldg.
BIMSON
Res. 1,2,3
'Lab West'
'Lab East'
Lifelong Learning
Parking Structure
2nd Ave.
Stockton Blvd.
Mixed Use Residential
Alice Waters Institute
Square
Innovation Hall
Market plaza
3rd Ave. (proposed)
OAK PARK
Future phase
Future phase
AGGIE SQUARE
UCDAVIS
Innovation District P3s:
The New Town-Gown Partnerships
October 25, 2021
SITE OVERVIEW
JC DAVIS :: AGGIE SQUARE DEVELOPMENT PHASE 1 - SACRAMENTO, CALIFORNIA 08.2021
UCDAVIS
WEXFORD SCIENCE+TECHNOLOGY
ZGF


UC Davis Hospital
Shriners
SoM
SoN
Lab West
Lab East
Lifelong Learning
Parking Structure
Mixed Use Residential
Stockton Blvd.
Aggie Square
Future phase
Future phase
AGGIE SQUARE
UCDAVIS
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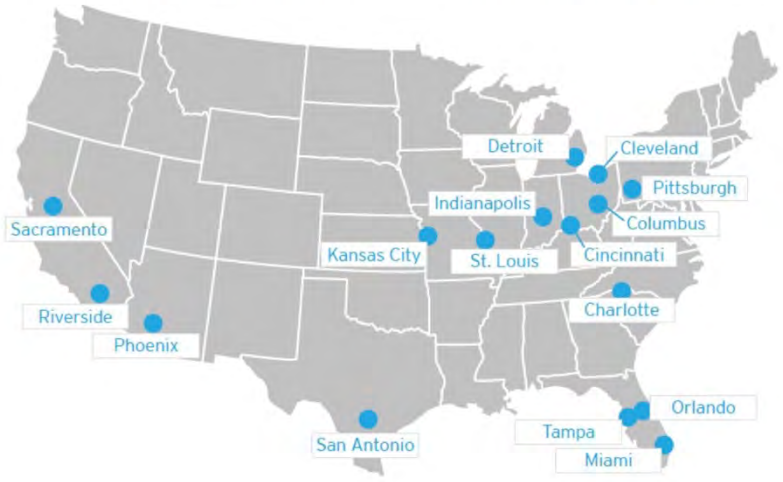
UCDAVIS
WEXFORD SCIENCE+TECHNOLOGY
ZGF

AGGIE SQUARE
UCDAVIS

"Charting a Course to Sacramento's Future Economic Prosperity"

The Sacramento region is one of 16 American Middleweight regions



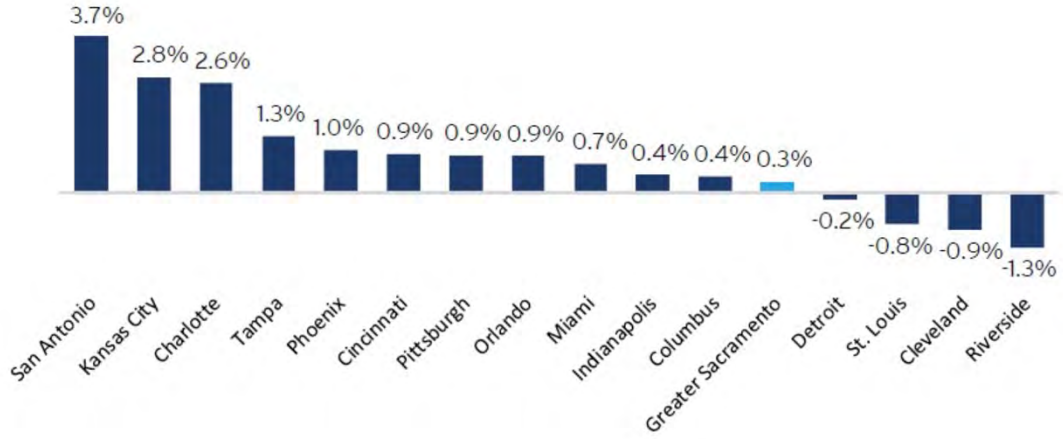
Five Key Factors

1. Tradeable Industries
2. Innovation
3. Talent
4. Infrastructure
5. Governance

Source: Brookings Institute, Valley Vision, Greater Sacramento Economic Council (2018)

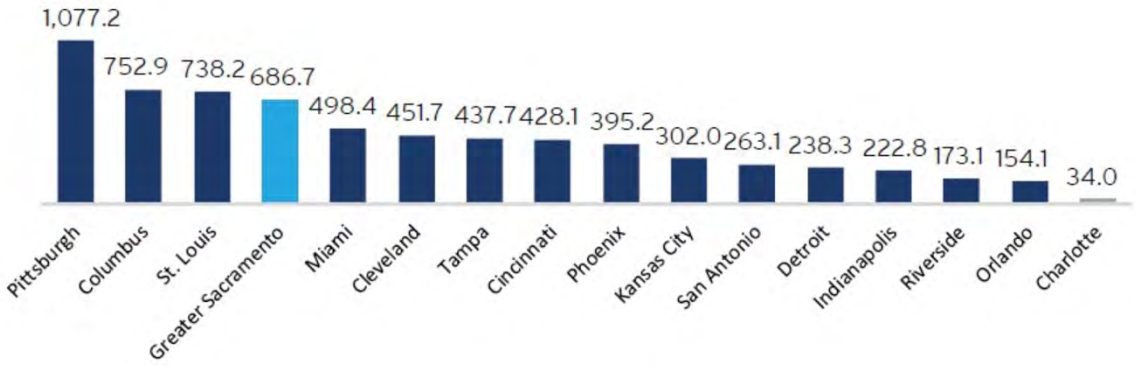
The Sacramento region experienced relatively slow job growth in advanced industries

Employment CAGR in advanced industries, 2005 - 2015



The Sacramento region boasts strong research universities

Average annual R&D expenditures at higher education institutions, (millions, 2009 USD), 2011 - 2016

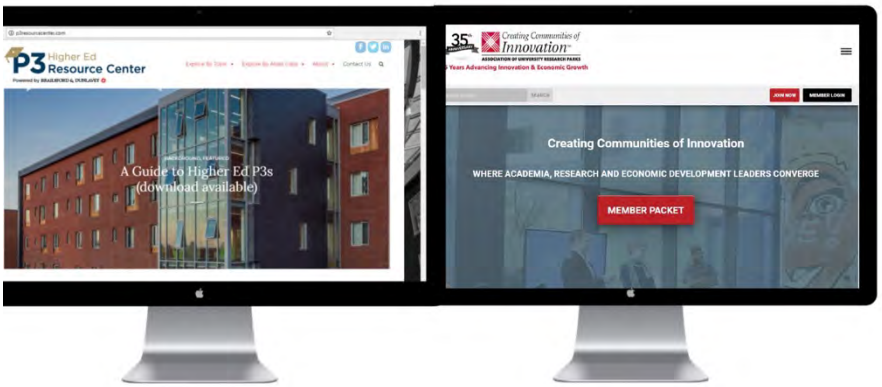


UC Davis - Sacramento Partnershi

AGGIE SQUARE
UCDAVIS

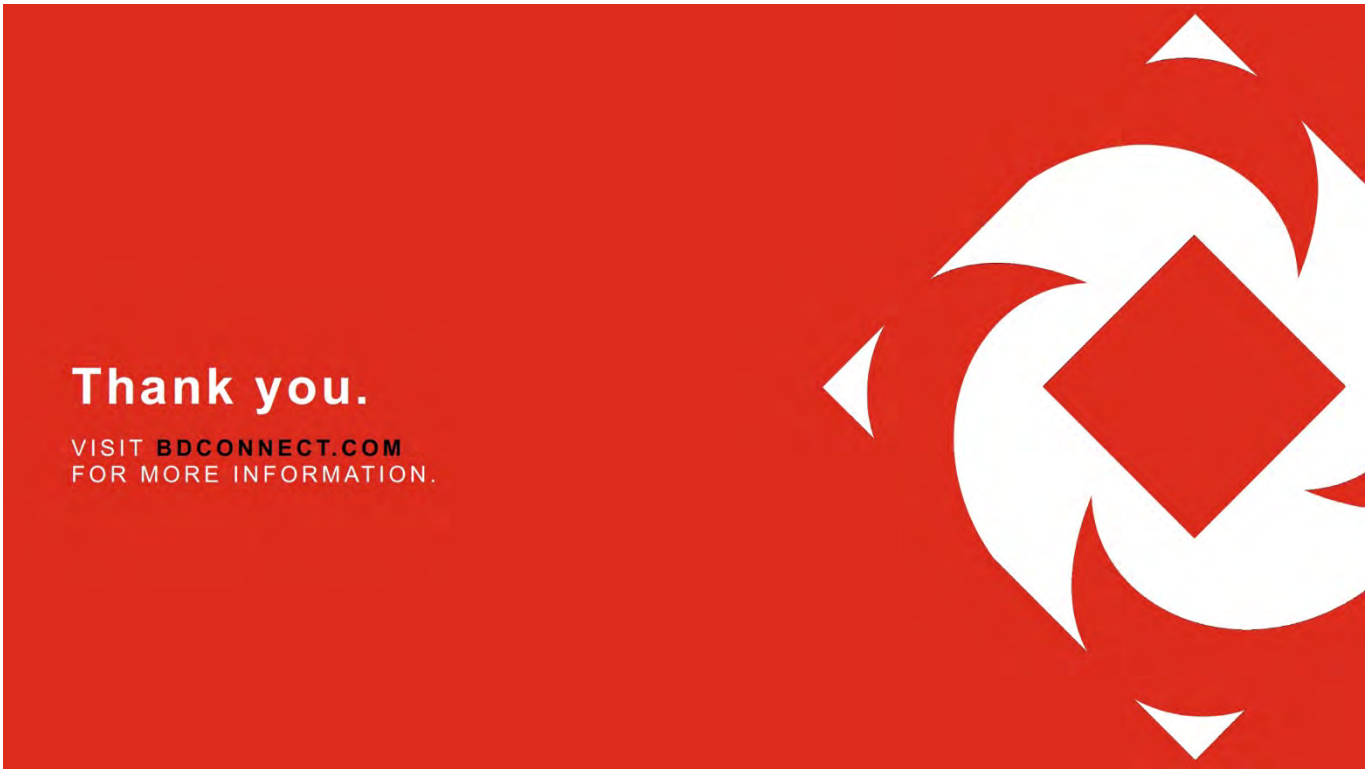
- Aggie Square Phase 1 private investment **= $1.1 billion**
- Workforce development **= 16K ongoing jobs; talent retention**
- Regional economic development **= $3 billion economic impact annually**
- Affordable housing funding **= $50 million**
- Enhanced Infrastructure Financing District (EIFD)/TIF **= $30 million**

Additional Resources



P3ResourceCenter.com

aurp.net


Thank you.
VISIT BDCONNECT.COM
FOR MORE INFORMATION.

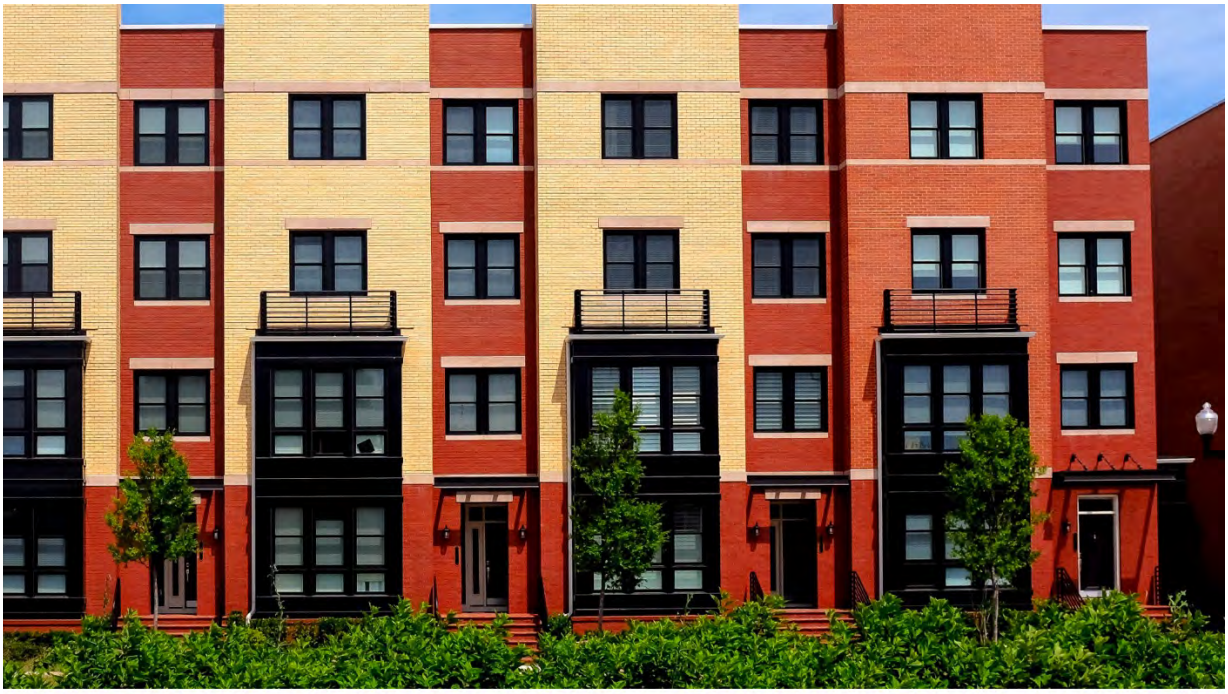
Appendix 10::

A Guide to Higher Ed Public-Private Partnerships
https://p3resourcecenter.com/wp-content/uploads/2018/07/P3-101_Final-1.pdf

TABLE OF CONTENTS

WHAT IS THE HIGHER ED P3 GUIDE?

Brailsford & Dunlavey presents a seven-part series on public-private partnerships ("P3s") in the higher education space, intended to educate readers on this dynamic market—its history, opportunities, misconceptions, and more. It should be noted that every P3 deal is unique and this document is only an introductory overview.



Part 1

INTRODUCTION

Colleges and universities are facing limited resources—a reality we are all aware of. In response, schools are looking at all of their services and evaluating what is critical and core to their academic mission. With priorities in mind, they're then looking for creative ways to make needed projects happen. As a result, every year many schools partner with private sector parties (e.g., developers) under the notion that the whole is greater than the sum of its parts—that, together, these partners can do more, and do it efficiently and effectively. And when it comes to repairing or improving the country's aging campuses and their facilities, there are a lot of opportunities for partnership—including facilities' design, construction, financing, and long-term operation and maintenance.

1

What is a P3 and what does one look like?

That's a surprisingly tricky question. At the moment, there is **no common definition** of a P3, there is no centralized governing body overseeing P3s, and there is a limited breadth of experience in the higher education sector in the US. So in the simplest terms, a higher education P3 is a development/deal structure in which a public or private college or university takes on a private sector partner (or partners) to share in the resources, risks, and incentives that come with the development and operation/maintenance of campus facilities. The National Council of Public-Private Partnerships identifies **18 different legal and financial P3 structures**, and each P3 agreement is unique to the partnership, or deal.

P3s are not a silver bullet. They are not short-term engagements, nor are they without their challenges; indeed many in the P3 world think of them as marriages. They are simply **one type of alternative delivery method for schools to finance projects** that might otherwise go unfinanced, to leverage assets like land, to transfer risk, and to ensure operational success for years to come.

Colleges and universities look to P3s for many reasons, but most often because **funding is a challenge**. With aging campuses, and given the idea that new facilities can be important differentiators, schools are looking for **creative ways to continue improving the student experience**—even in the face of debt financing/capacity limitations. Beyond offering a vehicle for financing, P3s can also allow for development and operational risk transfer. Specifically, P3s can be structured to leverage expertise, avoid potential institutional procurement challenges, improve operational efficiencies, and more. In short, if a university is at Point A and wants to get to Point B, P3s are one way to bridge the distance.

Despite the term "*public*-private partnerships," higher ed P3s can happen at private institutions. While current research shows that the most common institutional profile for a P3 project in higher ed is a large public university, private institutions have begun utilizing partnerships more frequently. Likewise while P3s in higher education initially were sought after only for housing projects, now the engagements apply to a range of campus assets, including mixed-use featuring retail, student unions, campus recreation, hotel and conference centers, campus edge, health & wellness centers, office buildings, research parks, dining facilities, hospitals, and workforce/faculty/staff housing, among others.

As deal structures, **P3s are incredibly complex.** Each one is different, and each is almost unwieldy due to its many moving parts and parties. The stakes are also high because P3s are true partnerships—as a university, you're not picking a one-time collaborator for a quick job, you're picking **a partner who you'll work with for potentially the next several decades**… who your successors will need to successfully work with, and who will work hard to improve your students' experience for years and years to come.

P3s get a lot of press these days, with some people praising them and others demonizing them. Indeed, each claim can feel justified depending on how you look at P3s as a concept and which case studies you consider. But **P3s are not black and white.** They are potentially a world of opportunity, resources, creativity, and collaboration… and at the same time, potentially a world of misrepresentation, control issues, and difficult relationships. So here's the interesting part: Which world you end up in is up to you and your specific project. This is not about chance or luck, because P3s absolutely can be designed to ensure success. It just takes a whole lot of education, thoughtful planning, and vision. And, as needed, the wisdom to walk away.

Part 2

A BRIEF HISTORY

The P3 development model first emerged as a formal business relationship between a college or university and private developer/operator in the U.S. in the 1960s. Early on, the institution typically provided the land and the developer/operator designed, constructed, financed, owned, and/or managed the asset. Schools were at a big disadvantage here—due to lack of sophistication (or industry understanding)—and those without an advisor or way to educate themselves were typically negotiating with developers with a lot more experience.

The model evolved in the 1990s.

This is when tax-exempt financing became an obtainable funding source for development firms. Schools saw an opportunity to leverage their limited resources and carry out capital projects without tapping into their debt capacities. They also began learning how to navigate the world of P3s.

As recently as the late 1990s, P3s in higher education existed in only seven states. **Between 1997 and 2015, the number of transactions exploded,** and by the end of that period, transactions had been completed in over 35 states with approximately $13 billion worth of bond issuances for P3s. Over the last few years, P3s in higher ed have started to include more mixed-use components.

At the same time, **additional large players have entered the development space,** driving down capitalization rates as student housing and mixed-use projects have become a desirable asset class. Some of the most notable mixed-use P3 projects include developments at Drexel University, The University of South Florida, The Ohio State University, University of Kentucky, Texas A&M University, Houston Baptist University, Louisiana State University, Rowan University, and Seattle University, just to name a few.

When a developer equity model emerged with student housing developers obtaining access to equity capital, **some developers shifted from a fee approach to an ownership model.** Limited comprehensive data is currently available for equity-based transactions but large equity-based development deals have been realized at Arizona State University, Rochester Institute of Technology, Trinity College, and Syracuse University, to name a few. Two large student housing Real Estate Investment Trusts (REITs) became publicly listed in 2004 and 2005, and their success has led to legitimizing an industry.[1] It has also marked an arrival of local and regional players in many states that have evolved their off-campus student housing business into more sophisticated partnership projects with surrounding colleges and universities.

Meanwhile capitalization rates have narrowed between student housing and multifamily housing within the last three to four years. Student housing has become a desirable asset class compared to multifamily housing given the stability of the student housing sub-market and the addition of new REIT capital players.

[1]As of June 2018, one of these REITs is under agreement to be purchased.

Part 3

PROS AND CONS

There is no one easy, simple Pro/Con list for P3s. Why? Each university has its own perspective, and some perspectives differ slightly while others differ greatly. Consider that for one school, having control over the operation of a new facility is ideal, while for another school ideal might be turning over operation to a private partner. That means "lack of control over operation" is not necessarily a pro or a con.

Of course, we've seen that there are general trends.

As you look over the lists below, consider that they're not hard and fast rules, but generalities.

Reasons to do a P3

- Developer takes risk of upfront costs, budget, operations, and schedule
- Streamlined procurement
- Commercial construction standards lower development costs
- Leverages developer's experience as expert in construction
- Sometimes can preserve the debt capacity of institutions with limited borrowing ability
- Guaranteed financial returns to university through ground lease payments or as excess cash flow beyond the required debt coverage ratio
- The private sector partner will be contractually obligated to meet certain performance metrics throughout the agreement
- Could be credit positive
- Can usually accelerate the schedule

Reasons not to do a P3

- University may lose out on important revenue stream
- University may be required to provide guarantee to developer
- University may already have in-house development and/or management expertise
- University can obtain lower cost to capital than a foundation tax-exempt bond financed or private equity financed model
- Additional costs such as legal, development, and financing fees
- Possible negative impact to university's balance sheet and debt profile
- May increase cost to students
- University might not have procurement concerns

For universities that have decided against a P3, ultimately the "reasons not to do" list spoke louder—or there were deal-breakers that could not be resolved. For universities that have decided to embark on a P3, the "reasons to do" list won out. Which is to say, P3s aren't all good and they aren't all bad—they just *are*. They have benefits and they have drawbacks, just like any other delivery structure.

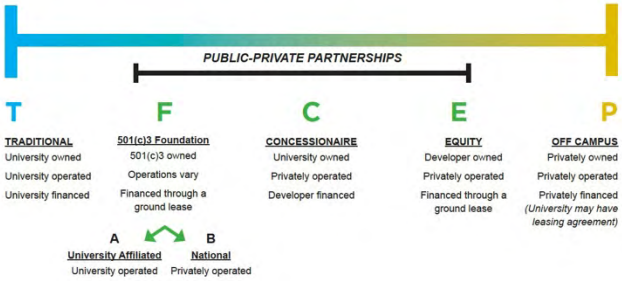
Part 4

DEVELOPMENT STRUCTURES

P3 deals are not solely building and construction deals, but financial and operational risk transfer agreements. How much risk is transferred, and how much control a university retains, varies greatly depending on the type of development structure.

This series gives a sense of what can be expected from each structure type.

Note that there's a big asterisk here, since the structures covered are not exhaustive, and since each P3 deal is different and can be customized to what the involved parties want. As a window into the big picture, let's look at risk transfer. As you move from blue to yellow along the below spectrum, risk is transferred away from the university and to the private sector partner. Notice that who owns, operates, and finances the project changes as you move from a traditional structure (non-P3) to an off-campus facility.



Traditionally, financing is through the institution and the school has the option to implement various delivery methods such as design-bid-build, construction manager at risk, design-build, etc. This is the way most schools have traditionally delivered their capital projects.

On the following pages, the various P3 development structures are explained in more detail.

University or Unaffiliated Foundation

The school ground leases land (typically for 30 to 40 years) to an affiliated or non-affiliated 501(c)3 non-profit foundation that issues the debt to build a project it owns. The foundation then engages a fee developer to design and build the project. Upon completion, the facility is managed by the college or university, a private entity, or some type of shared governance model that has become increasingly common. Ownership of the improvements typically revert back to the university after the retirement of the debt service and expiration of the ground lease.

Generally, the school has the option to terminate the agreement early by purchasing the improvements simply by paying off the debt. In addition, depending on the deal structure, various agreements may be needed to finalize the financing, including potentially a master lease, first fill agreement, university marketing assistance, and/or a non-compete condition—all as applicable to the asset class. Any surplus revenue can be retained by the school for any lawful use. In this type of deal structure, the debt can impact both the school's balance sheet and credit.

Pros

- Typically tax-exempt debt
- Typically no real estate taxes
- University has no financial commitment
- Cost of capital is low-to-moderate
- Some of cash flow goes to the school (waterfall)
- Ground rent
- Could be credit positive for the institution

Cons

- Debt can impact the school's balance sheet
- Debt can negatively impact university's credit
- Additional costs associated with this type of transaction (e.g., capitalized interest, debt service reserve fund, annual fees)

Spotlight: Louisiana State University

By choosing a P3 with a 501(c)3 development structure, LSU accelerated the replacement and renovation of its housing by 5+ years, preserved its debt capacity, retained housing and res life programming authority, and received ground lease payments and surplus cash flow—est. at $218M over the 40-year ground lease.

Equity

A developer purchases or ground leases land (typically 40–80 years) from the institution and privately finances the project. The private partner designs, builds, owns, and usually but not always asset manages the project with varying levels of university involvement depending on the deal. The project reverts to college or university ownership at the end of the ground lease. In addition, depending on the deal structure, various agreements may be needed to finalize the financing including a master lease, any fill agreements, marketing assistance from the school, or a non-compete condition. Ground rent and revenues are negotiable. Depending on various factors, any project-related debt can be treated off the school's balance sheet and have a low impact to credit, thereby reserving debt capacity for other campus projects.

Pros

- School has no financial commitment (reserved debt capacity)
- Some cash flow goes to school (waterfall)
- Ground rent

Cons

- School has little control of improvements
- Cost of capital is moderate-to-high
- Real estate taxes
- Debt is not tax-exempt

Spotlight: University of South Florida

By choosing a P3 with an equity development structure, USF maximized its financial return while concurrently deferring project delivery, operating, and budget risk to its private partners. The $133M USF Village is opening in two phases (fall of 2017 and fall of 2018) and will feature 2,150 beds, campus recreation facilities, dining facilities, and retail space including the first Publix grocery store on a college campus.

Concessionaire

Let's look at this through the lens of student housing. A concessionaire and school enter into a master concession agreement ("MCA") in which the school contributes all or most of its existing housing portfolio. Housing system revenues are pledged to a third-party lockbox. The concessionaire utilizes its administrative rights to the revenues in the lockbox to raise outside capital for investment in the housing portfolio. The capital raised is first used to defease any outstanding debt on existing facilities, with the remainder then allocated to enhance existing projects and implement new projects, and to establish a reserve fund. The MCA is typically a 50+ year agreement that outlines how the assets will be maintained and operated.

In coordination with the college or university, the concessionaire:

- designs and constructs new housing
- renovates/repairs existing facilities
- manages, operates, and maintains the facilities over the life of the concession

The school:

- collects housing fees (which allows for students' use of financial aid for housing)
- is responsible for marketing the assets and room assignments
- manages the student life aspects of the housing program, as well as security

Future revenues cover operating expenses, repair & replacement, operations & maintenance, and capital reserves. The net operating income ("NOI") of the system pays the debt service on the capital raised, and concessionaire fees. After debt service and fees, remaining revenues flow into a facility reinvestment fund, with the remaining portion being contributed back to the institution. As the concessionaire (i.e., not the college or university) holds the note, the agreement is usually treated as balance sheet and credit neutral, though this is not always the case.

Pros

- School has high control of improvements
- School has no financial commitment
- No ground lease (flexibility)
- Cost of capital is low
- Most of cash flow goes to the college or university (waterfall)
- Accelerated delivery schedule due to alternative financing & concessionaire incentive for payment
- Concessionaire is incentivized to optimize lifecycle costs (energy efficiency, etc.) that might have gone unconsidered

Cons

- May incur real estate taxes
- Debt is not tax-exempt
- Large amount of fees
- Would likely include the majority of the school's housing stock

Spotlight: Wayne State University

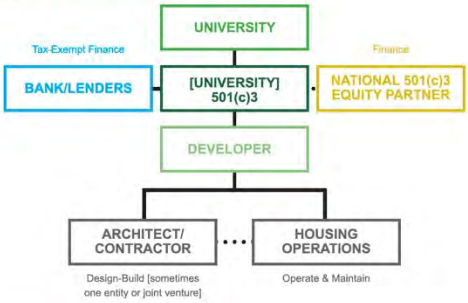
By choosing a P3 with a concessionaire development structure, Wayne State was able to accommodate its students' residential needs without impacting the university's credit. The effort will renew the university's housing program through a combination of new construction, demolition, and strategic renovation of existing facilities.

While the variety of impacts and risks associated with each of the P3 structures may be confusing at first, ultimately it's beneficial to all parties involved that so much variety exists. What works for one college or university does not work for another, and what works for one private partner does not work for another. Being able to choose among the existing structures (including not choosing a P3 at all)—or to blend them—allows each development to best serve the parties involved.

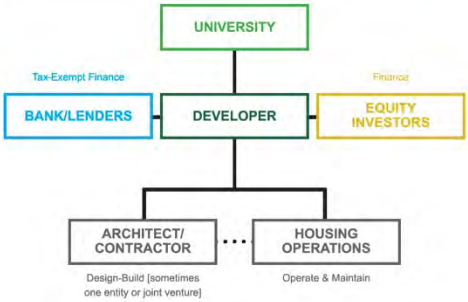
If after reading this guide you believe a P3 is your best option for developing a new asset, rest assured that it is all navigable and that many schools have gone through this process before you.

Here's a look at the University or Unaffiliated Foundation, Equity, and Concessionaire models as organizational charts

University or Unaffiliated Foundation



Equity



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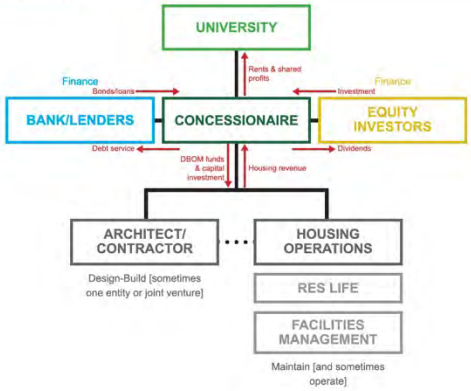
Concessionaire



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Part 5

9 ATTRIBUTES OF A GOOD ENGAGEMENT

Although all P3s present higher education institutions with an alternative delivery method, not all P3s are created equal.

The following attributes make a successful relationship much more likely.

1.

Clear definition of expected outcomes

While this is seemingly obvious, we have seen that it is nonetheless common for there to be some disconnect about what the parties expect to achieve through the P3. Ensuring that parties on both sides are on the same page is crucial.

2.

Sufficient development time

P3s are complicated transactions so institutions must allow sufficient time for negotiating the structure and required legal agreements of the project.

3.

A true partnership, not a master/servant relationship

P3s work well when both parties have mutual respect and consideration for each other, and are invested in each other's success.

4.
Honesty
Nothing implodes a P3 faster than a lack of trust among the parties.

5.
A fair and equitable contract/management agreement
Related to the first point, it is crucial that expectations are clearly spelled out in an operating agreement that allows both parties to know exactly what is expected and how success will be measured.

6.
A close working relationship with the institution
For the relationship to work, the private contractor must have support from and access to campus leaders.

7.
Consistency among all properties, whether privately or university managed
Given that students flow freely back and forth among properties, it is imperative that the facilities be managed and maintained equitably. For schools, that means embracing a *pari passu* mentality—ultimately considering and treating private properties as equals.

8.
Intentional design and construction
The off-campus property must be of a quality defined by the institution.

9.
Flexibility
The private contractor should have latitude to shop for the most cost-effective solutions available.

Part 6

COMMON MISCONCEPTIONS

Whether you've heard good or bad things about P3s, chances are you've heard something incorrect.

Here are some misconceptions we come across frequently—and the real story.

1.

Soon every project will be a P3

P3s are the right answers for some projects, but in other cases they're best avoided. While we've seen more and more universities express interest in P3s over the years, P3s will never fully replace traditional models, nor should they. P3s are not always more cost-effective, not always faster, and not always better. They are simply one of many ways to bring a project to fruition, and the more options a university has, the better. We work with a lot of universities—hundreds of them. Some express an interest in P3s, and we go on to recommend a P3 development structure. Others express an interest and we steer—and strongly steer—them away from a P3. P3s are not a silver bullet.

2.

P3s are privatization—or are equivalent to privatization

If a university wants to fully privatize its assets, it can do that. It can fully relinquish ownership over an asset, and the private sector entity can fully own and operate the asset. But that's not a P3. During the period of a P3 (generally 30–80 years depending on the deal structure), the private sector partner has leasing rights to the asset, and can manage it as laid out in the agreement. That's not full ownership, and as a result the private sector partner does not have typical ownership rights like selling or mortgaging the asset.

3.

P3s in higher education can only be used for student housing

While P3s in higher education mostly originated in student housing, the model has successfully been applied to a variety of assets. For example, we've worked on and seen P3 projects for the following asset types: mixed-use featuring retail, campus recreation, hotel and conference centers, campus edge projects, student unions, hospitals, health & wellness facilities, and workforce/faculty/staff housing, among others.

4.

P3s are only for new construction

While much of the P3 work we've seen results in new development, there is a fair amount of modernization and maintenance work that takes place through P3s.

5.

If our university does a P3, we'll have no control over the project

A university can retain as much or as little control as it wants over the development of the asset, depending on the type of P3 development structure selected. Once the asset is built and in operation, the university can retain control either by remaining the operator or, if the private sector partner is the operator, tracking the asset's performance against metrics worked into the P3 agreement. If the private sector partner cannot meet the agreed-upon performance metrics, the university can react.

6.

In a P3, the private sector partner funds the project

The private sector doesn't fund the project, but finances it—a minor difference in language, but a huge difference in reality. The private sector partner can source funds from a variety of areas, including but not limited to traditional debt financing, private equity, and economic development incentives.

7.

The only reason universities pursue P3s is the financing help

Private financing can be a huge draw—that is a definite. Beyond private financing, though, there are many reasons universities look to P3s. They include: risk transfer, faster project delivery, minimization of costs throughout the asset's lifecycle, etc. Remember that a P3 is so much more than just building or renovating an asset; usually it's a multi-decade relationship.

8.

If my university does a P3, my job will be cut

Nothing is a guarantee, of course, but our experience has not shown this to be the case. Often a P3 is even a means for empowerment and professional advancement, as the university will need educated employees to oversee the developer's design, construction, financing, operation, and/or maintenance of the facility.

Part 7

THE VALUE OF AN ADVISOR

In addition to all the usual reasons a university might turn to an advisor—including the inspiration and empowerment necessary to advance university communities—advisors are especially helpful when evaluating and embarking on a P3.

Here are some things you can expect of most any advisor.

They will:

- Help the college or university navigate the various P3 deal structures
- Drive the process of the transaction (through ribbon cutting, if wanted!). Even though each P3 is different, an advisor knows what comes next in the process—what to look for, what to do, and what to avoid
- Serve as the "team captain" or "orchestra conductor," ensuring everyone shows up at the right place at the right time, and works together
- Work alongside the school as it receives legal advice
- Oversee the program, budget, and timeline to ensure a project is delivered on time

Additionally, some advisors offer a higher level of service and all-important impartiality. These advisors can:

- Help define the project and ensure market viability in a way that is consistent with the school's mission
- Act 100% in the school's best interest; these advisors are agnostic as to whether the building gets built or how it's funded
- Ensure an honest and fair RFP/RFQ process (e.g., selection of private sector partner) due to impartiality
- Have relationships with professionals in every aspect of the deal—architects, developers, contractors, etc.—that can be leveraged as best serves the university
- Specialize in higher education, giving them the expertise to enrich the project and fully integrate themselves within the context

ABOUT B&D

Founded in 1993, Brailsford & Dunlavey is a program management and development advisory firm with comprehensive in-house planning capabilities, dedicated to serving educational institutions, public agencies, and non-profit clients. Acting as advisors, we shepherd an idea, make it a viable project, and oversee it through ribbon cutting and into operation. We are nationally recognized as a leader in the higher ed P3 market and were a finalist for P3 Bulletin's 2017, 2018, and 2019 Technical Advisor of the Year awards.

If you would like more information, please contact Doug Kotlove at dkotlove@programmanagers.com.

BRAILSFORD & DUNLAVEY

P3 Higher Ed Resource Center

Powered by BRAILSFORD & DUNLAVEY

In 2017, B&D launched the **Higher Ed P3 Resource Center (www.p3resourcecenter.com)** as an educational space for the sector—college and university leaders, developers, and other stakeholders. Serving as a central, go-to place for answers—or even the right questions to ask—the resource center offers articles from industry experts, infographics, presentations, and more.

The Higher Ed P3 Resource Center serves as a library, housing information from throughout the industry. It also includes B&D's annual State of the Industry Report, which gives a detailed account of the year's average project costs, deal structures, ground lease terms, real estate asset class mixes, and other factors.


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Appendix 11:

The Association of Governing Board's Growing the Greater Campus: The Use of Institutionally Affiliated Real Estate Boards
https://agb.org/wp-content/uploads/2019/01/whitepaper_2015_foundation_real_estate.pdf

About AGB

Since 1921, the Association of Governing Boards of Universities and Colleges (AGB) has had one mission: to strengthen and protect this country's unique form of institutional governance through its research, services, and advocacy. Serving more than 1,300 member boards, 1,900 institutions, and 36,000 individuals, AGB is the only national organization providing university and college presidents, board chairs, trustees, and board professionals of both public and private institutions and institutionally related foundations with resources that enhance their effectiveness.

Association of Governing Boards of Universities and Colleges
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Introduction

Public colleges and universities have long turned to institutionally related foundations ("IRFs") to raise private support and manage endowments and other financial assets. From the start, however, IRFs have also served as vehicles enabling public institutions to engage in real estate transactions and related entrepreneurial ventures that advance important institutional priorities but would be impractical or impossible for a state entity to undertake alone.

In recent years, the ongoing decline of state funding, reluctance on the part of state legislatures to allocate funds for capital projects, and the search for alternative revenue sources have led many public educational institutions to look to their foundations to finance, acquire, develop, and manage property.[1] Evolving real estate markets, backlogs of deferred maintenance, long-term returns on investments in sustainability, and student demands for enhanced amenities all require more sophisticated, strategic, and opportunistic approaches to real property development.

A Quick Governance Survey conducted by the Association of Governing Boards of Universities and Colleges (AGB) in 2014 found that over 40 percent of participating IRFs had assumed an increasingly active role in real property projects and entrepreneurial ventures over the past five years.[2] IRFs can be essential partners, advancing multi-faceted solutions to complex institutional challenges. In some cases, foundations function primarily as financial partners, provide essential support in financing, and allow institutions to pursue opportunities unavailable to state agencies. IRFs can also contribute strategic guidance and vision, working with other nonprofits, municipalities, or for-profit corporations in public-private partnerships that might blend philanthropy, revenue generation, and mission-related functions that advance the interests of the institution, community, and business partners. For institution boards, however, simply asking the foundation to do it isn't the answer. AGB's recent report of the National Commission on College and University Board Governance posited that institution boards should devote greater attention to improving oversight of auxiliary and affiliated foundations.

This paper focuses on the new and/or increased role of the IRF and the questions raised concerning (a) which organization is most appropriate to undertake these activities, (b) how the organization should be structured, with an emphasis on the possible advantages and disadvantages of different configurations, (c) how the organization should be governed, managed, and staffed, and (d) the types of real estate projects in which it may get involved.

[1] The acquisition of real property by charitable foundations in support of their state universities is not a new concept. Over 100 years ago, Kansas University Endowment Association acquired property for use by Kansas University. (Lanier & Bass, 2008.)

[2] AGB Quick Governance Survey, "The Changing Role of Foundations." January 23, 2014. http://agb.org/2014/01/23/survey-results-the-changing-role-of-foundations-infographic.

IRF versus Institution

Generally, the first question to be asked is, "What are the advantages and disadvantages of an IRF over using the institution proper?"[3] This differs from state to state, but some of the items to consider are:

Advantages of an IRF:

- Flexibility
  - Increased speed and agility to make and quickly close on a transaction
  - Allows a purchase price closer to market value versus one tied to an appraisal
  - May be less rigid on certain contractual provisions (e.g., governing law, indemnification, or environmental issues)
  - Avoids entanglement in state procurement requirements
  - Easier to build off-campus
- Financing
  - Use of alternative methods—secured loans, lines of credit, fixed-and variable-rate loans, interest-only loans, seller-financing, internal investment funds—in addition to taxable and non-taxable bond financing
  - Quick turnaround with private lenders versus working through the state government
  - Possible bargain sale or other donative options
- Construction
  - Commercial building construction standards versus state building construction requirements
  - Ability to choose contractors and suppliers for qualities other than just price because of no "low bid" requirements
  - Less-costly design requirements versus constructing a building on campus (e.g., no LEED certification)
- Use or Disposition
  - Ability to change use or even dispose of property if no longer needed and retain the proceeds, including appreciation in real estate value
  - Adds to the attractiveness of campus by allowing desired retail establishments

[3] This paper is most applicable to public colleges and universities and systems, but independent institutions may find some of the information relevant to their purposes, as well. The focus of the paper is on "off-campus" property development.

- Financials
  - Generates unrestricted revenue
  - Building equity versus paying rent
  - Helps shield the institution from liability
  - Insulates the property from possible disposition due to state budgetary pressures

Disadvantages of an IRF:

- Financing
  - Institution may have a greater ability to obtain financing or have a higher credit rating
- Construction
  - Institution already has existing and experienced construction and facilities staff but the IRF may need to hire such specialized skill sets
- Use
  - Institution may not have to comply with local zoning and use requirements
  - IRF may need to add staff to manage real estate development and operations
- Financials
  - IRF may have less ability to offset unrelated business income (UBI)
  - IRF may have fewer resources to cover start-up losses
  - IRF may have "going concern" issues if there are consistent ongoing losses
  - IRF does not have sovereign immunity or condemnation powers
  - IRF may have to pay real estate taxes

To provide some context, consider that an IRF may have more flexibility financing certain types of real estate transactions. For example, an IRF may be able to finance through a traditional bank loan by allowing a lien to be placed on the property, as opposed to an institution that may be restricted from placing liens on its property. Thus, the IRF will be able to more advantageously leverage the assets for the benefit of the institution. This in turn generates a variety of alternative financing options that can be utilized to further the mission of the institution or organization, such as public-private partnerships or joint ventures.

Also, an experienced IRF may be able to act with greater efficiency, resulting in overall cost savings for the college or university. Compared to an institution engaged in real estate ventures, an IRF is encumbered by far fewer regulatory and administrative burdens. An IRF can act quickly to acquire a property and has greater flexibility on price, contract terms, and even timing than an institution. The approval process for an IRF for property acquisition may be exponentially shorter given that the project is not subject to state governmental review

and approval requirements. Moreover, those individuals who have ultimate authority over such development projects at the institutional or state level may be unfamiliar with the real estate's location. This can easily translate into financial issues caused by delays in site plan or permit approval, or a failure to understand and follow local development practices, or a lack of knowledge about whom to contact in an applicable municipality's organization. An IRF should be able to navigate those hazards more easily given its dedicated mission, professional staff, and familiarity with the location. However, unlike an institution, an IRF has to deal with local zoning requirements.

Cost and timing are not the only benefits an IRF can confer to its institution. For example, an IRF is not constrained by having to accept the lowest-cost bidder. This enables the IRF to select the best contractor rather than being compelled to merely accept the cheapest proposal. An IRF must still follow reasonable business practices and conduct arms-length transactions. However, lowest cost is not the only factor that should be considered in undertaking real estate ventures. A better product or faster delivery can correspond to an increase in the functioning of the space, furthering its use and even resulting in lower operational costs. Additionally, projects may be leveraged advantageously based on the use of a particular contractor on multiple projects. Furthermore, the selection of local contractors can provide benefits that ultimately generate unquantifiable returns to the institution on other projects, as well as goodwill in the local community. Future projects may also benefit from employing local contractors, as they are already familiar with the nuances and preferences of the IRF, the institution, and the locality.

Finally, an IRF has significantly more freedom to sell or otherwise dispose of real property based on the changing needs of the institution. The IRF can sell the property without having to follow state surplus property laws or being subject to delays in accepting an advantageous offer because of the need to involve state government. An institution that sells surplus property may be required to transfer the proceeds from the sale into the state's general fund instead of reinvesting the proceeds into the institution. The money received from the sale of property owned by an IRF can be reinvested in other real estate or assets for the use or benefit of the institution. An IRF can also better respond to market conditions and choose whom to sell property to and when, thereby maximizing potential return on its assets. For example, instead of selling a property, an IRF may lease the property to a private entity or even exchange properties, again allowing the IRF to better leverage assets and even limit potential market loss. Often, before an institution can sell a property, it must first offer the property to other public entities or agencies, thus causing more delay and loss of potential revenue from the sale. Additionally, the IRF may have the opportunity to sell the property to the institution at a later date in order to recoup its investment and limit its loss, all the while accomplishing the goals of both the IRF and the institution.

IRF versus REFF

If the answer to the first question is that an IRF is preferable to using the institution, then a logical follow-up question could be: "Is there a need for a dedicated real estate-focused IRF ("REFF"), or can the main IRF undertake these activities?" Some general considerations of an REFF versus the main IRF include:

Advantages of an REFF:

- Isolates risk from the corpus of the main IRF's assets
- Focuses the mission of the organization on real estate
- Develops a board of directors and staff with real estate experience
- Favorable tax treatment of unrelated business income and real estate tax benefits
- Possible non-mission real estate investment opportunities

Disadvantages of an REFF:

- Additional administration/staff time and financial resources
- Another company and board of directors with which to deal
- Further financial/tax reports and filings with resulting expenses

An REFF may be unnecessary:

- If you do not have a concern about risks to the IRF's core assets
- If UBI is not a concern
- If real estate assets are not significant or there is a no plan to undertake a significant amount of real estate acquisition or development
- If there are not significant unrelated uses expected in the real estate development

The examination of REFF advantages over disadvantages listed above is not a uniform comparison, as each IRF is unique in its circumstances and situation. The default position may be to keep all real estate activities within the IRF because of the institution's desire for control and simplicity. To know why and when an IRF would need to create a separate REFF, one must have a complete understanding of what the IRF and its institution wish to accomplish.

REFFs are particularly effective if the desire is to utilize more-complex and subsequently more-lucrative mixed-use development projects. Such projects can enable unprecedented flexibility by allowing the property development to respond more effectively to the needs of that market and thus generate unrestricted revenue as well as attract and retain students and faculty. Many IRFs have boards that are focused on fundraising and composed of donors who have little experience with or appetite for undertaking significant real estate projects. A smaller board

comprising real estate professionals may have the capacity to undertake such a project. This also has the added benefit of further involving successful alumni and possibly bringing forth additional resources. An REFF may also isolate the risk of such a development from the core of the IRF's assets. There are downsides an IRF needs to consider, as well. One of the best ways to help make this determination is to understand what is involved in creating and managing an REFF.

REFF Entity Structure

The selection of the proper organizational structure for an REFF should be based on many factors, including but not limited to: subsidiary or independent organization, preferred form of legal entity, the appropriate IRS classification for income tax, governance and administration, and the relationship to the IRF and its institution.[4]

Subsidiary or Independent Organization

A threshold issue will be the amount of direct control the IRF wishes to have over the REFF. If the IRF wishes to assert direct control or even ownership over the REFF, then it needs to be a "subsidiary" organization. The IRF will direct the activities of the REFF. It may control and/or appoint the board of directors of the REFF. It may provide the administration and staff of the REFF. The relationship to the institution would be through the IRF. The mission of the REFF may be a complementary mission of the IRF to develop private real estate assets to benefit the IRF and institution. Alternatively, the REFF may be an "independent" organization with little IRF control. The IRF would not "own or control" the REFF. The board could be self-appointing. It may have a direct relationship with the institution separate and apart from the IRF. It may have a separate mission from the IRF that may be focused on fundraising. The choice of subsidiary versus independent status will affect the type of legal entity that needs to be created.

REFF Entity Structure

Subsidiary or independent real estate focused foundation supporting the college or university and/or the main IRF

- Subsidiary
  - » Direct control or ownership by IRF
  - » Relationship with institution through IRF
  - » Potentially less independence and separation from IRF
- Independent
  - » Independent board/leadership from IRF
  - » Direct relationship with institution
  - » Potential separate mission from IRF

[4] The discussion provided herein related to legal structure or taxes is for informational purposes only and should not be substituted for seeking appropriate guidance from your legal and tax professionals for your particular situation and circumstances. Nothing in this paper should be construed as providing legal or tax advice.

Corporation versus Limited Liability Company

The most common business entities for REFFs are traditional non-stock or nonprofit corporations or, more recently, limited liability companies ("LLC").[5] The tried and true traditional corporation with a separate board, annual meetings, and all of the usual corporate trappings remains the most favored. Although there are ways to streamline the corporate structure through interlocking boards and administrative staff without creating the full operating structure that a separate corporation would normally require, another corporation may still be overly burdensome because of its costs and required procedures for its operation. If the goal is merely to create a secondary legal barrier for real estate development and litigation purposes, an LLC may be a better option, depending upon the requisite state law. Creating a single-member LLC (SMLLC) may provide the flexibility in structure without adversely affecting the purpose. An SMLLC does not need many of the traditional corporate formalities, and the IRS classifies an SMLLC as a "disregarded entity," which means it assumes the tax status of its tax exempt parent and will not be required to make any separate tax filings. This designation, versus seeking tax-exempt status as a traditional corporation, will save time and administrative work. However, many people, especially board members and university senior administrators, are more comfortable with traditional corporations, so expect some pushback resulting from a

Corporation vs. LLC

Subsidiary or independent real estate focused foundation supporting the college or university and/or the main IRF

- Corporation
  - Need to follow corporate formalities
  - Need board of directors
  - Taxable or tax exempt
    - Need IRS approval for tax-exempt status
  - Additional tax return and audit expenses
  - Long standing familiarity with corporate structure
- Limited Liability Company (LLC)
  - Avoids most requirements for corporate formalities
  - More flexible company structure
  - No separate board or meetings required
  - Single Member LLC (SMLLC) – must be owned by IRF
    - Disregarded by the IRS for tax purposes
    - Automatically classified as a tax- exempt entity
    - Financials roll into parent
    - No separate tax return or audit required
  - Recent IRS ruling allows tax-deductible donations to LLC
  - Relatively new type of entity, so possible lack of familiarity by legal counsel, board, and your local and state governmental officials on tax-exempt status

[5] This paper will not address the question of whether real estate activities could be undertaken in a for-profit entity.

move towards the relatively newly created LLC format. Please note that there are times when a separate corporation with its own tax-exempt classification will make more business sense than an LLC, as we will describe later in this paper.

IRS Classification

An REFF may be organized in a way to engage in a variety of real property development that makes it better suited to not incur unrelated business income tax. Specifically, the main IRF, based upon its classification and relationship to its institution, may not enjoy the same flexibility as an REFF when it comes to the use of debt-financed property and unrelated business income tax. These tax nuances characterize the potential need to utilize an REFF over that of the main IRF.

Determining the structure of the entity is important, especially as it concerns how the IRS classifies the relationship between the REFF and its IRF and/or institution. In light of recent scrutiny, if careful attention is not given to these relationships, there may be serious adverse tax consequences.

In order for any organization to receive tax-deductible contributions and beneficial tax treatment, it must be tax-exempt under IRC (Internal Revenue Code) §501(c)(3). REFFs are and should be designated as 501(c)(3) public charities and can achieve this status in one of three ways: as a publicly supported organization or §509(a)(1), a supporting organization or §509(a)(3), or a hybrid organization.

- Publicly Supported
  - An REFF can qualify as a public charity under 509(a)(1) and 170(b)(1)(A)(iv) or (vi) if it derives a "substantial part of its support" from donations from direct or indirect public contributions.
  - Often, an IRF acts only as the fundraising arm of the institution. Another model is to have the IRF serve as an asset management organization, with the fundraising role left to the institution itself. In most instances, an REFF would not normally be looked to as a fundraising organization, although it might accept donations of real property from time to time.
  - To qualify as a publicly supported organization, an REFF would be required to meet a public support test requiring that it have a broad base of support from the general public. Thus, a majority of administrative efforts might be spent raising donations and engaging in compliance activities instead of real estate development. This level of distraction could limit the effectiveness of the REFF.

- Supporting Organization
  - Supporting organizations under IRC §509(a)(3) receive public charity status because of their relationship to another public charity or public instrumentality without regard to the source of the organization's income and through its assistance to its affiliated public charity or organization. To qualify as a "supporting organization," the IRS requires that the organization meet three criteria:
    - First, it must be organized and operated exclusively for the benefit of, to perform the function of, or to carry on the purposes of one or more publicly supported organizations, as described in IRC § 509(a)(1) or IRC § 509(a)(2), the "organizational and operational tests."
    - Second, it must be operated, supervised, or controlled by, or in connection with, one or more publicly supported organizations (the "relationship test"). The relationship test requires an REFF (supporting organization) to hold one of three statutorily described close relationships with the public university (supported organization). The REFF must be: (1) operated, supervised, or controlled by a publicly supported organization ("Type I"), (2) supervised or controlled in connection with a publicly supported organization ("Type II"), or (3) operated in connection with a publicly supported organization ("Type III"). When a public university is involved, Type III status is often preferred to avoid control of the REFF by the university, which can subject the REFF to state rules and reporting requirements. Federal tax law changes, however, have made it more difficult to be designated a Type III supporting organization.
    - Third, in order to qualify as a supporting organization, it must not be controlled directly or indirectly by one or more disqualified persons other than foundation managers and other than one or more publicly supported organizations (the "lack of outside control test").
  - Given the nature of the REFF activities, it would seem that a supporting organization classification would be most reflective of its desired activities of real estate development to benefit the institution.

- Hybrid
  - One hybrid structure is an IRF that is classified as a publicly supported organization under §509(a)(1) with a subsidiary REFF set up as a separate supporting organization or 509(a)(3). It can be a Type I supporting organization that avoids the Type III rules by having the IRF appoint a majority of the directors of the REFF. Thus, the IRF acts as the REFF's parent, but the REFF retains its own separate tax and legal status.
  - A similar model is to create an SMLLC (which does not have to apply for tax-exempt status, as it receives such status automatically from its exempt parent as a disregarded entity) so that if the tax-exempt parent is classified as a public charity (509(a)(1)) or a supporting organization (509(a)(3)), then the SMLLC holds the same tax status. The SMLLC must still comply with the obligations of its owner's tax classification to avoid jeopardizing its owner's tax-exempt status. The REFF could be created as an SMLLC under a 509(a)(1) or 509(a)(3). In addition, a series of SMLLCs could be created for various real estate projects if needed under the ownership of either the REFF or the IRF.

There are a multitude of tax considerations to be evaluated when IRFs seek to diversify their interests, and even more when it involves the development of real property. One such consideration is UBI.[6] "An exempt organization is not taxed on its income from an activity substantially related to the charitable, educational, or other purpose that is the basis for the organization's exemption."[7] Generally, all rents from real property are excluded from being considered unrelated business income tax (UBIT).[8] However, all or a portion of the income from a "debt-financed property" is included in the calculation of UBIT as determined under Internal Revenue Code section 514.[9] Thus, otherwise "passive" income in the form of rent, originally not subject to UBIT, may become subject to UBIT if the property generating the income is "debt-financed property." Passive income includes amounts received or accrued as consideration for entering into agreements to make loans, dividends, interest, annuities, royalties, or rents from real property. Debt-financed property refers to any property that is held to produce income, with respect to which there is an "acquisition indebtedness" (some form of borrowing used to acquire or improve the property) at any time during the taxable year.[10]

[6] The IRS has noted that unrelated business income tax is a concern. Colleges and Universities Compliance Project, IRS, 2013. http://www.irs.gov/Charities-&-Non-Profits/Colleges-and-Universities-Compliance-Project.

[7] IRS Publication 598 (March 2012).

[8] IRC § 512(b)(3)(A)(i) (2011).

[9] IRC § 512(b)(4) (2011).

[10] IRC § 514(b)(1) (2011).

Debt-financed property does not include property whose use is substantially related (aside from the need of the organization for the generation of income or funds) to the organization's exercise or performance of its exempt functions.[11] Thus, one way to avoid the effect of the debt-financed property rules is to use the debt-financed property in this manner. The most common scenario in which debt-financing property rules do apply is when the property is used for the purpose of producing income (i.e., as an investment), rather than for carrying out an exempt function.[12]

Thus, to avoid rent from real property being subject to UBIT, the property at issue must either be used in furtherance of the organization's exempt purpose, or the organization's real property investment must avoid being categorized as debt-financed property because of "acquisition indebtedness." Generally, both instances are almost impossible for general educational IRFs to avoid given the fact that most real property includes some private tie-in and the need to borrow to fund most real estate projects.

However, having a separate and distinct REFF from the main IRF may avoid the adverse consequences of UBIT. This is evidenced in a special exception from the definition of "acquisition indebtedness" that may be available in the case of educational organizations. Under IRC §514(c)(9)(A), acquisition indebtedness does not include indebtedness incurred by a "qualified organization" in acquiring or improving any real property. A "qualified organization" is defined in IRC §170(b)(1)(A)(ii), and its affiliated support organizations are described in IRC §509(a)(3).[13] Pursuant to IRC §170(b)(1)(A)(ii), a qualified organization includes an educational organization that normally maintains a regular faculty and curriculum and normally has a regularly enrolled body of pupils or students in attendance at the place where its educational activities are regularly carried on.

As discussed previously, many IRFs may not be classified as supporting organizations under IRC §509(a)(3), but instead as organizations described in IRC §509(a)(1). An REFF may not be deemed a qualified organization under IRC §514(c)(9) unless it is classified as a supporting organization to an educational institution. However, if properly formed and classified, an REFF may have unrelated uses as well as debt-financing but still avoid having UBIT.[14] A final thought is to also look closely at so-called "good and bad use" as related to certain types of tax-exempt bond financing, which has different IRS rules than UBI. These sorts of circumstances demonstrate the need for using experienced professionals, as described in more detail below.

[11] IRC § 514(b)(1)(A)(i) (2011).

[12] Property "substantially all" is defined as at least 85 percent of the use is substantially related to the exercise or performance by an organization of its exempt purpose or function. Treasury Reg. § 1.514(b)-1(b)(1)(ii).

[13] IRC § 514(c)(9)(C) (2011).

[14] Thanks to Michele A. W. McKinnon of McGuire Woods LLP for her assistance in framing this section.

Governance and Administration

The advantage of developing a board of directors or advisors with real estate development, construction, and financing experience should not be underestimated. These board members can often provide sage advice, help avoid pitfalls, find opportunities, supplement staffing, and even offer funding solutions. However, it is an important to keep in mind that board members (such as developers) may not benefit personally from these real estate opportunities because of conflict of interest rules and certain IRS regulations. Additionally, board members may want to be more involved than the institution or the IRF's management prefers them to be, thereby creating a potential future internal governance conflict. This issue may be mitigated by outlining the roles and responsibilities of the board members at the outset. It may even make sense to develop a smaller real estate committee within the IRF board to help narrow focus and permit (or limit) board involvement. In some circumstances, having a small, dedicated committee with real estate experience could prove quite beneficial because the full board may be resistant to undertaking these types of activities without the encouragement and supervision of board members with relevant business experience.

Governance and Administration

- Building the board's expertise
  - Tapping into the board's experience and service
  - Board develops its own agenda
- Staffing requirements
  - Foundation resources/staff
  - Management experience
  - Appropriate skill sets needed in:
    - Construction
    - Real estate
    - Project management
    - Leasing
    - Facilities management
  - In-house, university, or outsource functions
  - College/university resources/staff
    - Independence concerns
    - Diversion of state resources
  - Workload
- Relationship with the college/university
  - Importance of maintaining an excellent and transparent collaboration

When staffing an IRF/REFF, one must be careful to not blur the line between the institution and the IRF/REFF, which could subject the autonomy of the IRF/REFF to further state scrutiny. In some states, an IRF may risk its independence if it accepts benefits from the institution. Despite this concern, IRFs/REFFs often share human resources with their institutions to avoid duplication of services and costs, and to avail themselves of specific expertise available at the institution. Often, the institution's employees also serve as the staff for an IRF/REFF. In other examples, the REFF will employ its own employees, separate and distinct from the institution or even the IRF. To avoid the blurring of this line, it may be advisable that the employees of each organization be kept separate and that their responsibilities remain distinct from one another. An alternative is to hire outside third parties to undertake most of the real estate activities of the REFF, although that may be an expensive endeavor that ultimately does not increase the skill set or ability of the in-house REFF staff.

Regardless of the specific staff and governance structure, both board members and staff should be vigilant to avoid or scrupulously manage conflicts of interest or the appearance thereof. Some of the most devastating breaches of fiduciary duty on the parts of foundation boards and senior executives have stemmed from outright conflicts of interest, conflicted loyalties, or lapses in obedience to the mission of the institution and/or foundation. As in the case of financial investment management, it may be appropriate for institutions and foundations to apply heightened standards regarding conflicts of interest to staff and board members closely involved in real estate project decisions. (For more, see the 2013 "AGB Board of Directors' Statement on Conflict of Interest with Guidelines on Compelling Benefit.")

As previously described, having an REFF separate from a main IRF provides certain benefits. Regardless of whether an REFF or the main IRF itself engages in real property development, if financially feasible and provided there is sufficient workload, it is advisable to employ certain specialized staff who have the ability to handle the nuances associated with such projects. The IRF/REFF staffing needs are dependent upon the number and/or size of the projects undertaken by the REFF. Thus, even though it might be ideal to have specifically dedicated employees for each function, it may not be realistic. Generally, a real estate director, property manager, leasing manager, and facilities manager would all be helpful to effectively facilitate an REFF's real estate projects. It is useful to develop a financial model on the costs involved in developing such a specialized staff, keeping in mind that said staff is likely to bring an increased level of efficiency and future cost savings.

Relationship of IRF/REFF and the Institution

The IRF/REFF, and especially the institution, must be fully supportive of each real estate transaction and project undertaken by the IRF/REFF. The relationship between the organizations must be strong and transparent in order for it to succeed. If there is a lack of confidence in the IRF/REFF by the institution, then it will never achieve its true potential. This is true on all levels of governance and administration of the organizations, not just the institution's board and senior management. For example, if the lower-level real estate department staff at the institution does not have a strong relationship with or feels threatened by the IRF/REFF, then it may be quite difficult for the IRF/REFF to fulfill its mission or to reach its maximum potential.

Do you need an REFF? Some questions to consider before deciding:

- Do you foresee future real property development as a means to meet the growth needs of your institution or as a source of revenue?
- Do you require flexibility in the use of property?
- Do you have concerns about potential liability of an activity being conducted at the property?
- Will the building have mixed uses unrelated to your exempt mission?
- Do you plan to debt-finance the development?
- Do you have a staff with real estate experience?
- Do you have a desire to develop or cultivate a separate board with real estate experience?

One way to address the relationship is through a formal memorandum of understanding (MOU) between the IRF/REFF and the institution. At a minimum, the MOU should clearly define the relationship between the institution and the IRF, if it is a fully autonomous or independent IRF. An MOU with an interdependent IRF should clearly articulate its standing as a separate 501(c)(3) organization serving a public trust.[15]

Types of Projects

Many institutions tap outside developers, including their own IRFs, to assume the responsibility for the growth area of student housing development and maintenance. The reasons vary but they include a desire to avoid spending limited capital on student housing or accruing the additional costs associated with construction of student housing under or through state building requirements, or a wish to complete the construction in a quicker timeframe than state construction practice normally permits, and with non-traditional amenities. There are great rewards in these types of developments, but there are also risks that an IRF may want to isolate from the corpus of its other assets. Employing a separate supporting organization, such as an REFF, may help mitigate these risks but still allow the rewards to accrue to the IRF.

In addition, institutions may want to involve IRFs in the construction of academic and administrative buildings, laboratories, hotels and conference centers, upscale retail and restaurants, research parks, athletic facilities, golf courses, student centers, structured parking, mixed-use projects, shopping centers, international properties, and other sophisticated facilities located on or off-campus.

An IRF may also want (or need) to look to some sort of public-private partnership (PPP) or joint venture (JV) with private entities to create a development on either university-owned or privately owned land. These PPPs or JVs can take many forms, and in some localities, it may be easier to undertake a JV through an IRF rather than through the institution itself. Some reasons for engaging in a JV include greater access to private capital or to privately held, well-located land, or a desire to benefit from the experience of a for-profit entity in certain types of development projects. Please note that the IRS has particular rules about joint ventures between nonprofits and for-profits, so it is important to consult experienced legal counsel as appropriate.

[15] "Illustrative Memorandum of Understanding Between a Public Institution or System and an Affiliated Foundation." Association of Governing Boards of Universities and Colleges, 2014. This illustrative MOU provides some excellent suggestions about what an MOU between the institution and IRF should contain to help clearly define the relationship between the organizations.

Conclusion

An IRF can be an essential player in the success of an institution's overall real estate efforts. The flexibility, reduced regulatory burdens, and overall cost savings an IRF offers can be significant. There are various legal structures for the IRF that may result in both favorable and unfavorable tax results. The IRF's ability to undertake a wide range of projects offers many possibilities but requires an experienced board, dedicated management, and knowledgeable staff. Also, for an IRF to serve its ultimate purpose, a coherent partnership between the institution and the IRF must be maintained in order to produce the most beneficial outcomes for the college or university. The determination to create an REFF has advantages and disadvantages, as well, depending on the overall real estate strategy. What is clear is that higher ed's need for additional real estate will continue unabated, and utilizing IRFs for such purposes offers but one approach to filling that need.

Resources and References

"AGB Board of Directors' Statement on Conflict of Interest with Guidelines on Compelling Benefit." Washington, D.C: Association of Governing Boards of Universities and Colleges, 2013.

Fisher, Gerald B. "Assessing New Entrepreneurial Activities for University-Related Foundations." Washington, D.C.: Association of Governing Boards of Universities and Colleges. Occasional Paper No. 48, 2002. *Available upon request.*

"Illustrative Memorandum of Understanding Between a Public Institution or System and an Affiliated Foundation." Washington, D.C.: Association of Governing Boards of Universities and Colleges, 2014. www.agb.org.

Lanier, James and David Bass. "What Lies Ahead for University-Foundation Relations?" *Trusteeship,* November/December 2008.

Quick Governance Survey, "The Changing Role of Foundations." January 23, 2014. http://agb.org/2014/01/23/survey-results-the-changing-role-of-foundations-infographic.

Roha, Thomas A. "State University-Related Foundations and the Issue of Independence." Washington, D.C.: Association of Governing Boards of Universities and Colleges. Occasional Paper No. 39, 2000. *Available upon request.*

Roha, Thomas A. "Foundation Independence Today." In Richard D. Legon, Ed., *Margin of Excellence: The New Work of Higher Education Foundations.* Washington, D.C.: Association of Governing Boards of Universities and Colleges, 2005.

Wiewel, Wim, Kara Kunst and Raymond Dubicki. "University Real Estate Development: Campus Expansion in Urban Settings." Cambridge: Lincoln Institute of Land Policy, September 2007.

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Kevin G. Sullivan presently serves as associate vice president for administration and general counsel for the Virginia Tech Foundation, Inc., a $2 billion charitable foundation supporting Virginia Tech.

His responsibilities include handling all legal matters of the foundation and the other related corporations, overseeing enterprise-wide risk management, and managing the $800 million real estate portfolio. Mr. Sullivan also serves as a professor of practice at Virginia Tech, lecturing in business law, finance, real estate, and entrepreneurial undergraduate-level courses and programs.

Mr. Sullivan has been involved with the institutionally related foundation community since 2003 and is frequently called upon by AGB and CASE to participate as both a speaker and a presenter at their professional conferences and forums.

Mr. Sullivan previously served as in-house corporate counsel for ExxonMobil and MCI Communications, at the law firm of LeClair Ryan, and on Capitol Hill in Washington, D.C. He received his bachelor's degree from Northern Illinois University, his master's degree from the University of Illinois at Chicago, and his law degree from Northern Illinois University. He holds a graduate certificate from Virginia Tech in nonprofit management.

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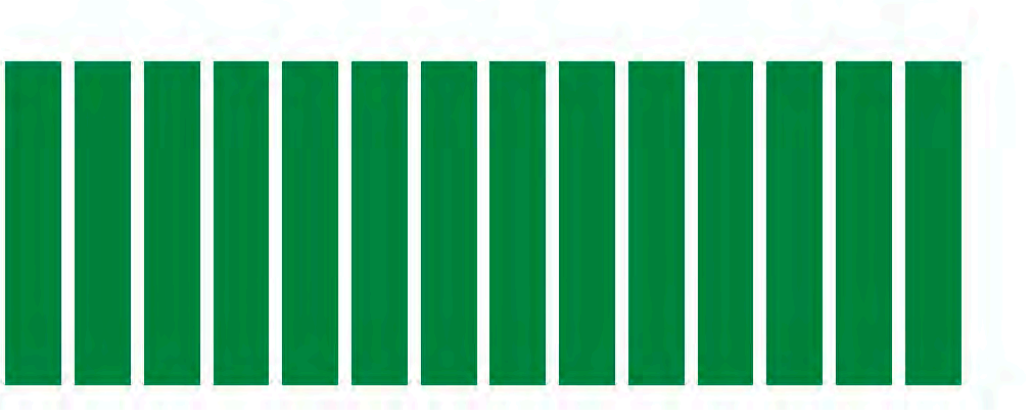
Mr. Malone graduated cum laude from the University of Florida, where he received his bachelor's degree. He then graduated from Vermont Law School with his juris doctorate.



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Appendix 12:

State of the P3 Higher Education Industry 2024
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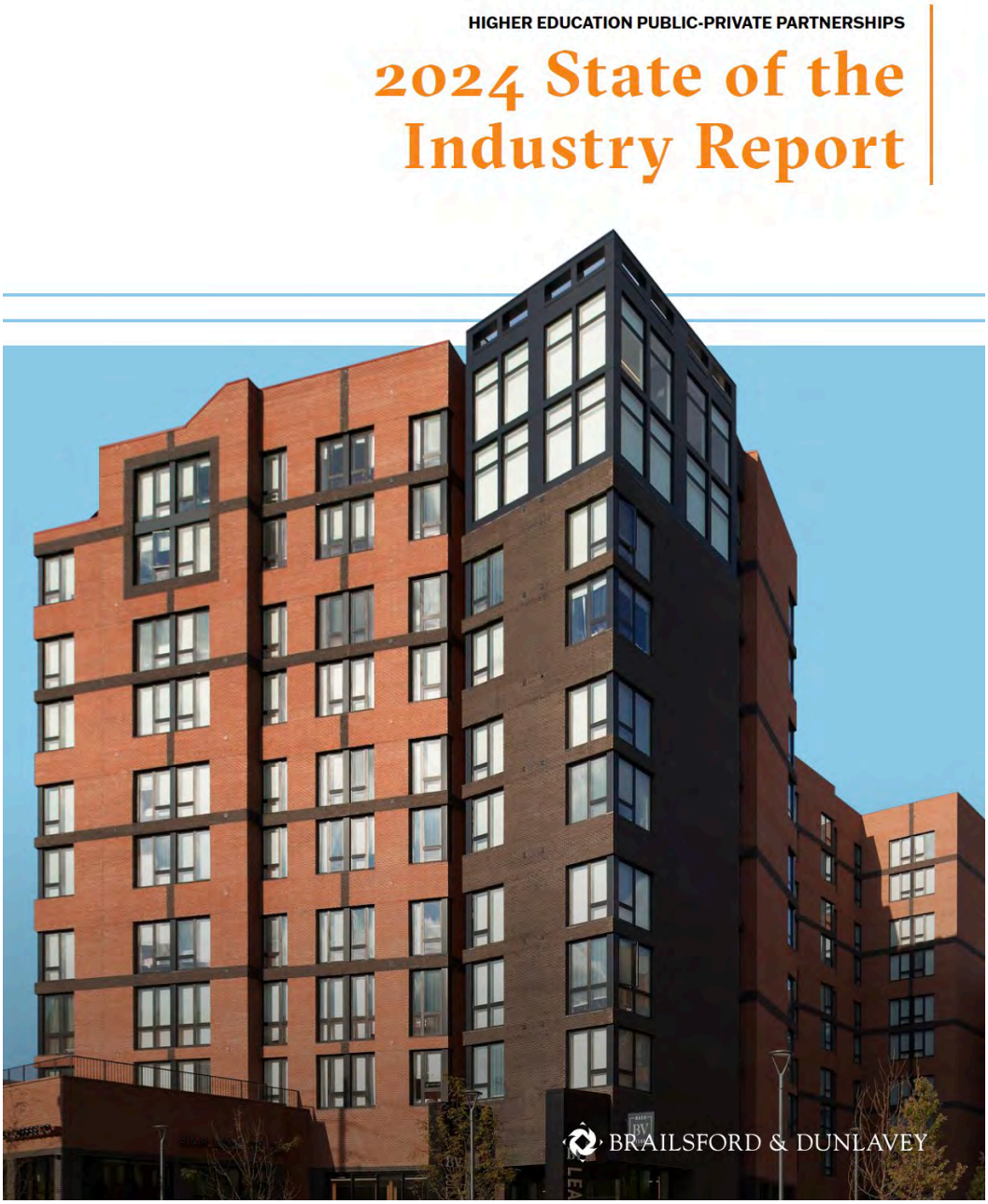
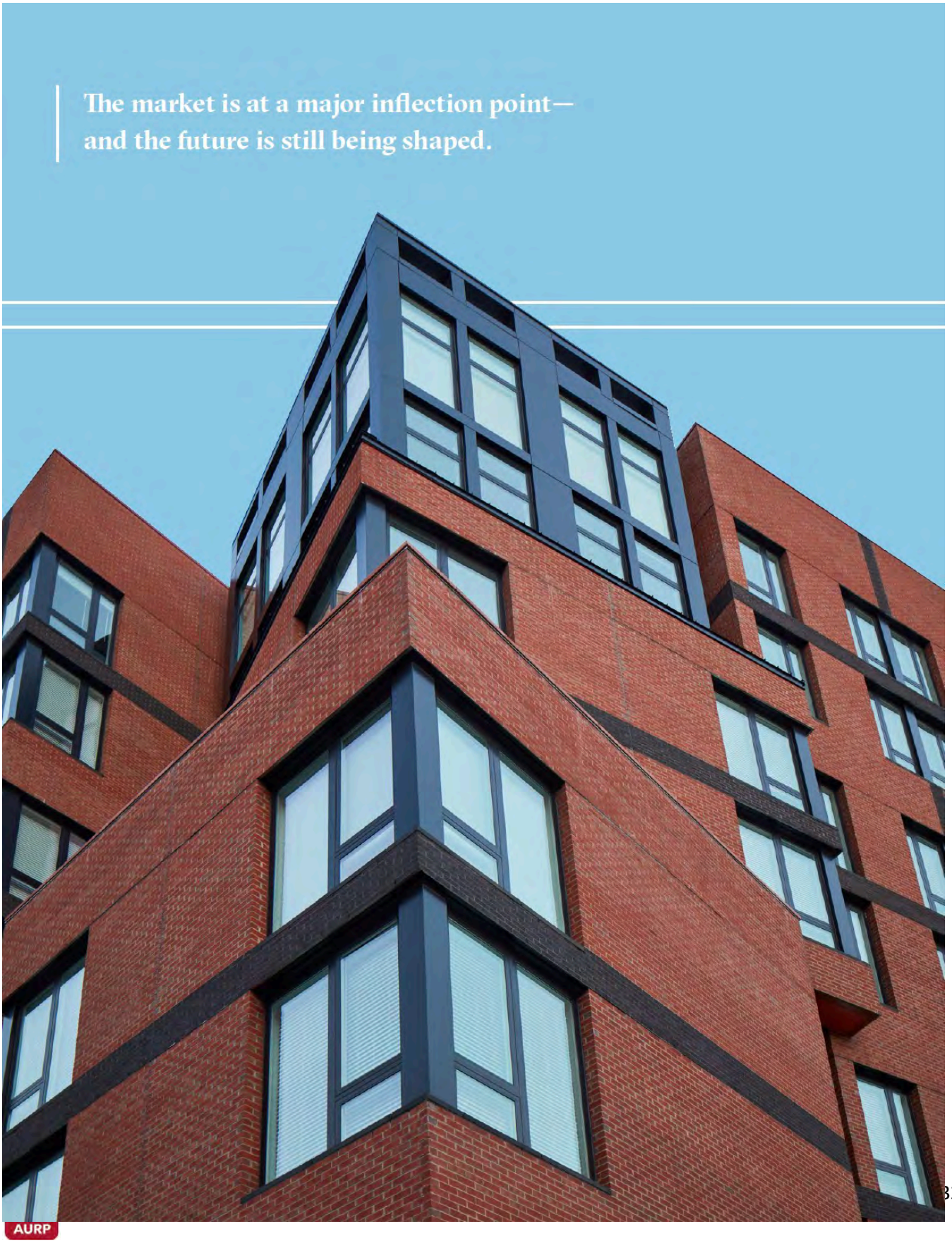



The market is at a major inflection point—
and the future is still being shaped.

Foreword

Numbers don't lie, but they don't always—or can't always—tell the entire story. Oftentimes, a situation is continuing to shift and further analysis into where a data set points is necessary to gain a more precise picture of where things stand.

That's the headline takeaway of Brailsford & Dunlavey's deep-dive into the higher education public-private partnership (P3) landscape. On the surface, we see a market that outperformed last year when looking at the total number of deals that achieved financial close—but one that still has not bounced back fully to its pre-COVID performance. But beyond the numbers, it appears to be a bag of mixed messages—along with some unanswered questions and contributing factors whose impact on the sector we still cannot fully understand.

> **In other words, this appears to be a major inflection point in the market.**

We do acknowledge that we've said that directly, or at least have implied it, in previous reports. But because of many external factors including the long shadow of the global pandemic, it is the continuation of an unstable and unpredictably dynamic sector that still has not yet normalized.

Brailsford & Dunlavey's 7th annual Higher Education P3 State of the Industry Report will dig deeper into the numbers—and also go beyond those numbers to inform and hopefully stimulate more dialogue.

As in past years, we welcome back our broad range of readers—higher education leadership, developers, financiers, lawyers, not-for-profit 501(c)3 owners, architects, credit rating agencies, builders, advisors and other higher education development stakeholders. If you're a newcomer to this annual check-in, we hope you find it informative as well as thought provoking as we seek to provide a valuable "snapshot" of the market's key metrics and what they might mean at this critical point in time.

Like in past years, this report focuses on housing-anchored and other mixed-use projects that reached financial close in a given year (in this case, calendar year 2023). To be included in our database, a project must be tied to a higher education institution, meaning it has been—or will be—built on a school's or foundation-owned land, and be a housing-anchored and/or other mixed-use initiative.

We fully recognize that P3s within higher education exist well beyond these parameters – and we're excited this year to introduce our inaugural Higher Education Energy P3 State of the Industry Report to shed light on a broader range of partnerships and institutions are engaging in to accommodate growth, expand capacity, provide more climate friendly systems, address deferred maintenance, and decarbonize infrastructure. Similar to the metrics provided in this report, key contract insights, including the closing value, partners involved, and the length of the agreements, are shared in an effort to improve the awareness and approachability of these campus energy deals.

But as we have done every year since 2018 with higher education housing and mixed-use asset classes, we are excited to share with you our view on the state of the industry!

Today's Marketplace
How We Got Here

To understand our current environment, it's important to start by looking back before COVID to a more stable, predictable sector. In 2018 and 2019, a total of 27 and 26 deals reached financial close, respectively. This marked four straight years of relative consistency, both in the number of deals as well as average deal size, largely attributed in those reports to a maturing sector that was becoming more comfortable in activating the benefits of alternate delivery (including speed to market, access to capital, and cost efficiency among others).

The pandemic of course then wreaked havoc throughout higher education beginning in March 2020, with only seven deals closing that year. Those seven schools are glad they stayed the course, taking a long-term perspective, since rising interest rates and construction costs starting in 2020 have severely impacted the last few years. While 2021 did appear to be a bounce-back year with 21 deals, the market activity was attributed to the schools and development community that together navigated initiatives started before COVID and through the turbulence to keep projects moving forward to closing.

Unfortunately, though, a lot of planned and/or potential projects were also put on hold during COVID, or never started, due to the pandemic. With a generally-accepted timeframe of around 18–24 months from project procurement to financial close, it thus came as no surprise that the 2022 numbers were down considerably from 2019.

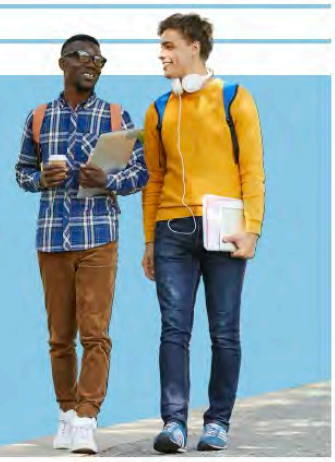
Which brings us back to our most recent year's data—2023. As noted in the Foreword, the number of deals that achieved financial close was up from 2022—from 10 to 14. Progress, yes, and according to Jessica Wood, managing director at S&P Global, "2023 was a pretty good story for the sector—there was definitely a tone of stabilization and recovery." But even Wood agrees that this is where the numbers don't tell the full story, and where we find our mixed bag of messages and what it means moving forward.

When we published last year's report it was clear to expect continued headwinds in 2023 becoming a new normal, including interest rates continuing to climb, construction costs and supply chain issues still posing challenges, and the anticipated enrollment cliff inching closer to becoming the new normal. "While things seem to have picked up, we have been hearing about construction delays and other postponements in projects," Wood added. In other words, continued volatility.

Nonetheless, because campus leaders remained optimistic on P3s generally—with 75% of the respondents to a P3 EDU/*The Chronicle of Higher Education* survey still expecting the use of P3s to increase on their campuses—and with the pandemic being another year further in our rear-view mirror, there remains a sense that the market is poised to finally get back to pre-COVID numbers. However with that volatility still in the air, it's time to dive into the numbers.

14 colleges & universities that had a P3 deal reach financial close in 2023

- Appalachian State University
- Arizona State University
- Arizona State University West Valley Campus
- The College of New Jersey
- Georgetown University
- Jacksonville State University
- Michigan Technological University
- Purdue University
- University of Evansville
- University of Hawaii at Manoa
- University of Illinois at Urbana-Champaign
- University of Michigan
- University of Nevada, Reno
- The College of William & Mary



By the Numbers

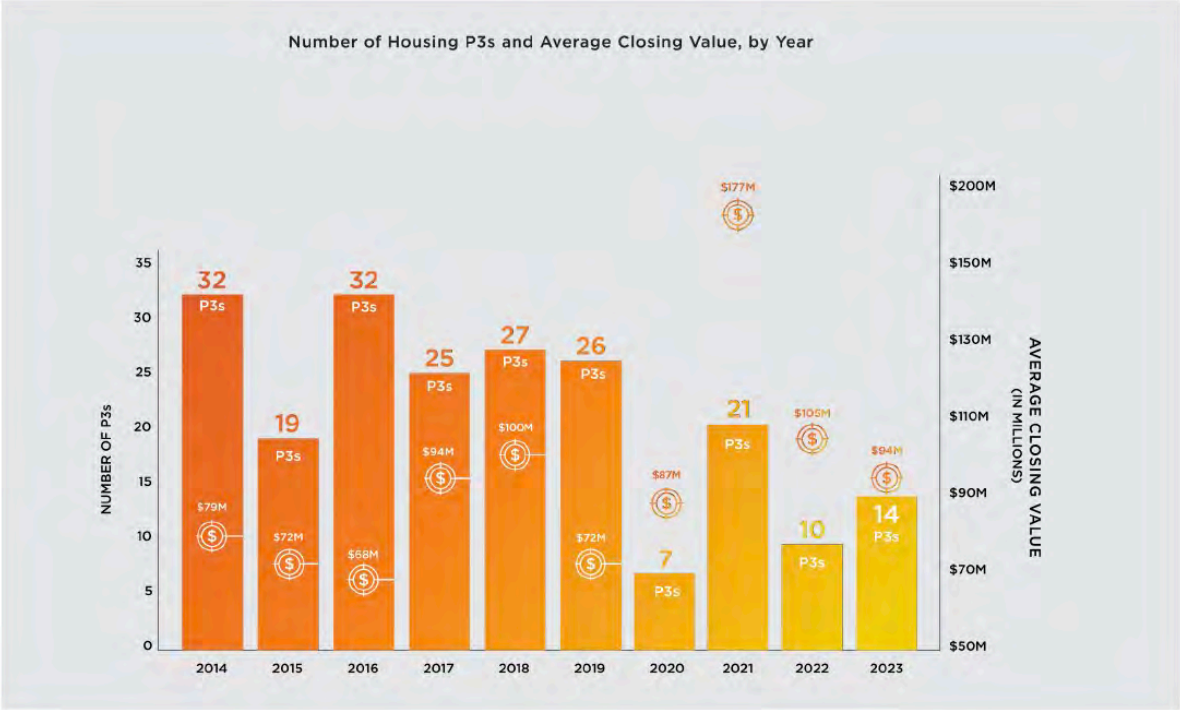
Total Numbers of Deals (and Deal Size) in 2023

The total number of deals that achieved financial close in 2023 was 14, an increase from 10 in 2022 as noted on the previous page.

The data is focused on closings rather than the number of deals that were initiated but never reached closing because they were halted or paused. There is some anecdotal industry evidence of overall market activity closer to pre-COVID levels, but with fewer deals reaching financial close. This dynamic would align with the broader industry impacts of rising construction costs, higher interest rates, increased developer selectivity, and other political factors (on campus and beyond). Next year's data year will begin to answer some of these important questions. Only time will tell. The current environment remains too volatile to confidently project future market dynamics.

While the number of closed deals did increase from 2022 to 2023, the same was not true about the average size of the deals. At $94M, this was down more than 10 percent from 2022 ($105M) and shockingly off close to 50 percent from 2021 ($177M). We've been a part of many discussions— and even some project structuring—that indicates reduced bundling of student housing with broader mixed-use initiatives coming out of COVID. Bundling, which increased prior to COVID, occurs when multiple asset classes, such as housing, retail, office and even hospitality, are built into one deal with a development partner. But with the 2023 project information, only a few closings featured any significant bundling of more than one asset class.

The broader contexts remains that the majority of P3s in higher education remain significantly smaller as compared to P3 infrastructure projects in other sectors, which are many times larger. Lastly,the minimum size for student housing P3s has changed from 400 to 600 beds.



By the Numbers
Deals by Institution Type

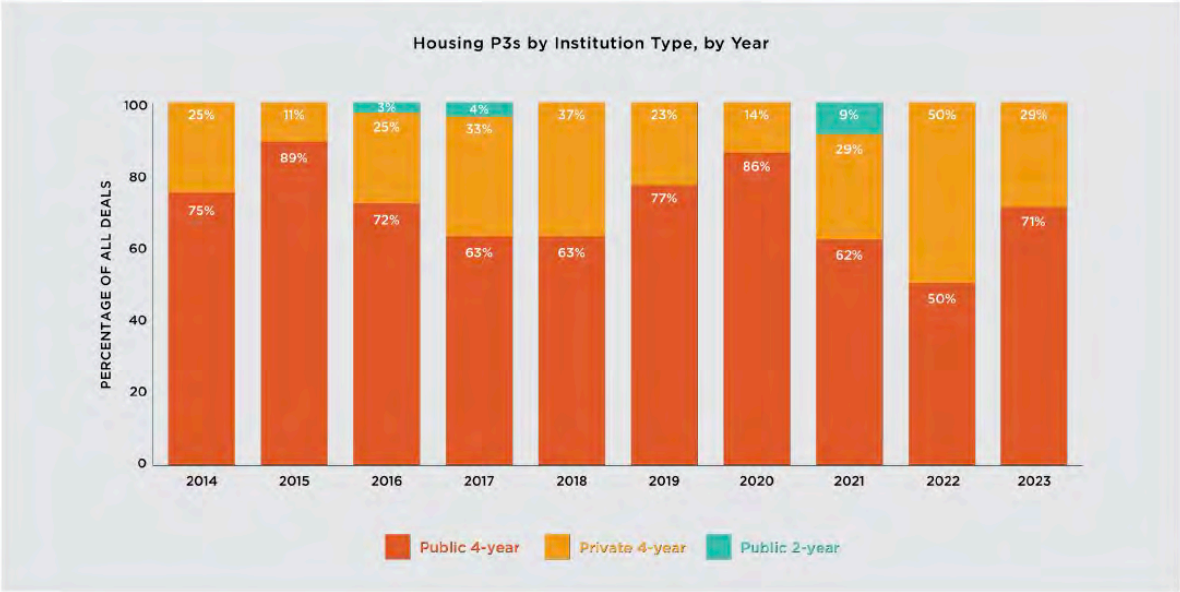
The public four-year university cohort reestablished itself as the primary driver of P3 deals in 2023. A majority of the deals (10 of 14—or 71%) reaching financial close were in this group, a change from 2022 when the deals were split evenly between public and private four-year schools. Four-year private schools were less represented in 2023 with four deals.

The conditions that over the past ten years have caused colleges and universities to consider P3s for housing and other mixed-use revenue generating assets have largely remained the same (cost effectiveness, speed-to-market, access to capital/willing private sector partners). What appears to be changing, however, at least anecdotally, is the profile of schools pursuing projects using this deal structure.

Historically the institutions pursuing alternative delivery—whether public or private—had often focused on alternative financing rather than utilizing debt capacity to self-finance develop, or had limited human capital to manage the projects to completion on time and on budget (from planning through implementation). But since COVID there has been a subtle shift to more schools with sufficient debt capacity embarking on P3s. Brand name public universities such as Michigan, Illinois and William & Mary used alternative delivery in 2023, while Texas, Tennessee and Virginia are considering alternative delivery despite having track records of delivering housing at scale as well as having the necessary debt and human capacity. Similarly, highly selective private schools including many in the Ivy League continue to explore P3 options particularly for graduate, mixed-use and workforce housing, which remains a hot topic nationwide.

In an environment of continued volatility, the data includes both deal closings and market interest across the full range of institutional profiles, highlighting both higher education's current challenges as well as its opportunities.

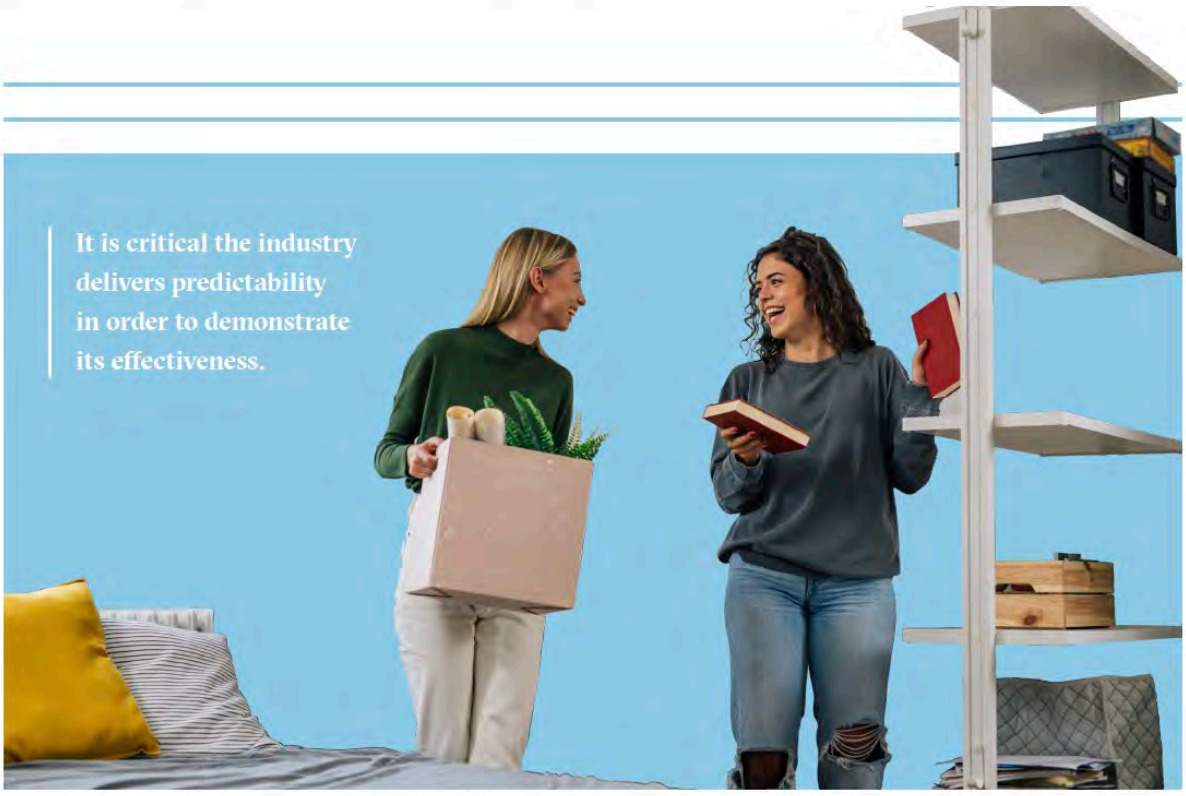
We have also seen a shift in schools providing more support towards P3 projects to get them over the finish line. This ranges from financial support (contingent leases, subordinating operating costs, paying for site work, etc.) to other non-financial support (contingent master lease, expanded live on requirements, and non-competition requirements). Thus, this creates what we see as a huge opportunity for the P3 market to demonstrate value and predictable outcomes resulting in a much larger market moving forward.



Volatility underpins this broader market opportunity, and should the market successfully deliver value to these institutions, more projects will likely follow.

The potential outcomes of this emerging dynamic are important: Assuming market interest remains strong, but environmental factors continue making achieving closing challenging, it will be critical for the industry to deliver predictability for current projects—otherwise the opportunity could be missed. In other words, demonstrating to the higher education community that the P3 model is an effective option in a volatile context will directly impact future market activity.

This shifting dynamic of increased highly selective public and private school interest in P3s combined with challenges closing deals could put pressure on an industry already experiencing increasing developer selectivity—ultimately furthering the overall divide between institutions in the higher education sector. On smaller campuses and for those in less desirable locations (including non-flagships, particularly in states with declining college-aged populations), volatility continues to make it difficult to execute a P3. These challenges include increasing difficulty in getting developers attention, getting proposed projects to pencil out financially, and continued enrollment unpredictability. Overall, anecdotal evidence supports this assessment. After the pandemic, the market is experiencing a slight overall reduction in the average number of submissions for housing and mixed-use procurements.



By the Numbers
Regional Breakdown

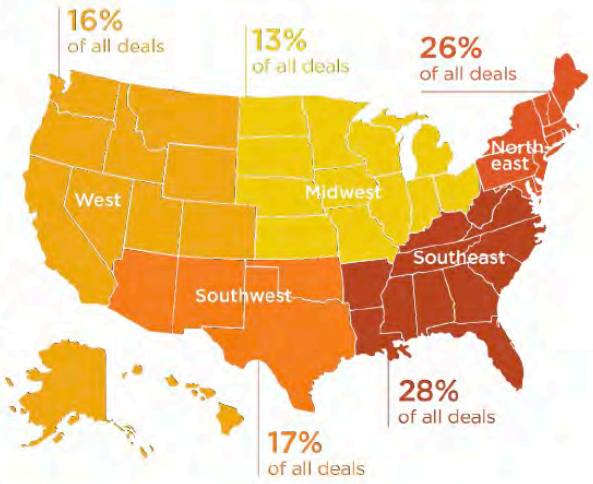
With state schools/flagships well represented, it's not a big surprise that the midwest and southeast combined for more than two-thirds of the deals in 2023. It's also not a shock that the northeast region, with the highest percentage of private schools by region—and which had half of the deals in 2022 (5 of 10)—had the lowest percentage in 2023 (eight percent).

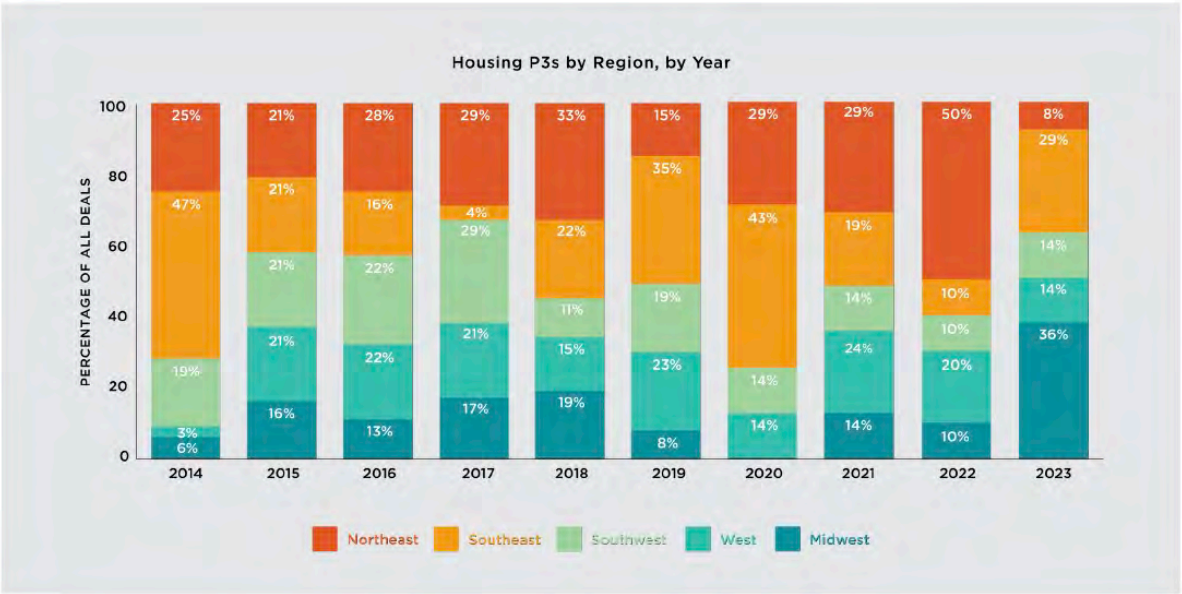
A scan of this data set going back to 2015, the first year analyzed in the 2018 initial report, shows no real trends have held. So it will be interesting to examine the breakdown again next year to see if perhaps a trend may be emerging, especially with increased enrollment volatility.

As we have discussed in previous reports, every P3 needs a champion on the university side. The industry has experienced significant turnover across higher education leadership that has required transitioning a P3 champion during a project.

Housing P3s by Region, 2014-2023

Lowest — Highest



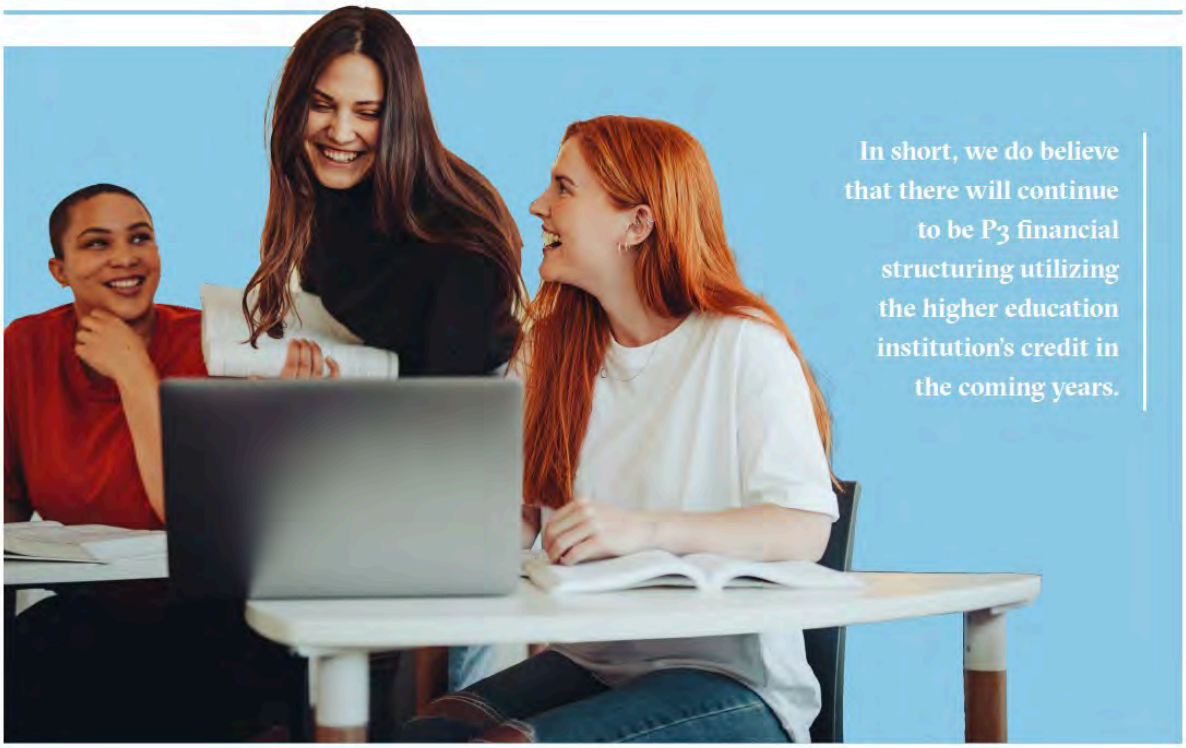


By the Numbers
Financial Deal Structures

Half of the deals closed in 2022 were university financed, and again this year it appears to be the predominant delivery method with equity following close behind. As we have discussed in the past, this report considers a university financed Design Build Operate Maintain (DBOM) to be a P3 due to the partnership transferring development and operating risks.

As Jamie Wilhelm, chief development officer at ACC said recently, "we're seeing several examples where the private sector is helping with speed to market, and a university is complementing that with a lower cost of capital. Schools are saying we can have our cake and eat it too—cost savings embedded in faster delivery from the private side, and they can borrow at 3% which means lower rents—a trend we're seeing particularly with graduate housing as schools that have typically relied on the private market can't any longer because affordability just isn't there in many local universities and communities."

The higher education context continues to experience pressure to keep college affordable, and a lower cost of capital (via university financing) ultimately means lower rents. It can also support allowing a project a property tax exemption which also lowers rental rates.



What Lies Ahead

As we continue to analyze why the market has not returned to pre-COVID levels, we look to understand the shifting context while waiting for answers to continue to be revealed.

Upon reflection, perhaps this new normal dynamic was the only logical result, but when one factor or data point is understood, it often leads to important additional questions.

Furthermore, and perhaps even somewhat obvious, signs of additional pressures on higher education are out there. Moody's Ratings, in its in-depth higher education report from August, highlighted the scale of need for capital renewal—to the tune of $750B–$950B over the next ten years. This is another accelerator in spending across the sector and therefore alternative delivery will remain an important tool for addressing capital needs, particularly among the better resourced portion of the sector.

Geoff Eisenacher, vice president of development at Gilbane Development, added that with this mounting competitiveness for resources of campus, he sees the use of P3s gaining traction and "it's possible that the volume of projects could double year-over-year in the very near term."

Finally, another aspect of the question raised earlier—can the market broadly deliver outcomes on university P3s in a volatile environment? Interestingly, as higher education institutions are complex organizations, the answer might depend on who

you ask—even among the various university stakeholders involved in such projects. While there are many fervent P3 supporters in higher education, there are also many who believe the risks involved demand full university control and as a result are not interested in exploring alternative delivery. Ultimately, , on many campuses the successes and failures of current P3 projects may determine whether future higher education P3s ever see the light of day.

With volatility and pressure on the horizon for higher education, alternative delivery methods can either enhance a school's mission or become undesirable.

Research and Economic Development
COMMITTEE MEETING MATERIALS

AGENDA ITEM TITLE: Research and Economic Division update - Pradhan

☒ OPEN SESSION
☐ CLOSED SESSION

PREVIOUSLY DISCUSSED BY COMMITTEE:
- ☒ Yes
- ☐ No

FOR FULL BOARD CONSIDERATION:
- ☐ Yes *[Note: If yes, materials will also be included in the full UW Board of Trustee report.]*
- ☒ No

☐ *Attachments/materials are provided in advance of the meeting.*

EXECUTIVE SUMMARY:
Deputy Vice President Arundeep Pradhan will update the committee on current activities with in the Research and Economic Development Division.

PRIOR RELATED COMMITTEE DISCUSSIONS/ACTIONS:
Information only

WHY THIS ITEM IS BEFORE THE COMMITTEE:
Update

ACTION REQUIRED AT THIS COMMITTEE MEETING:
None

PROPOSED MOTION:
N/A