

ADVANCING RESEARCH TOGETHER:

How might we better link research to practice through greater collaboration?



CRTKL

**COLABS
RESEARCH**



**AUG
2021**

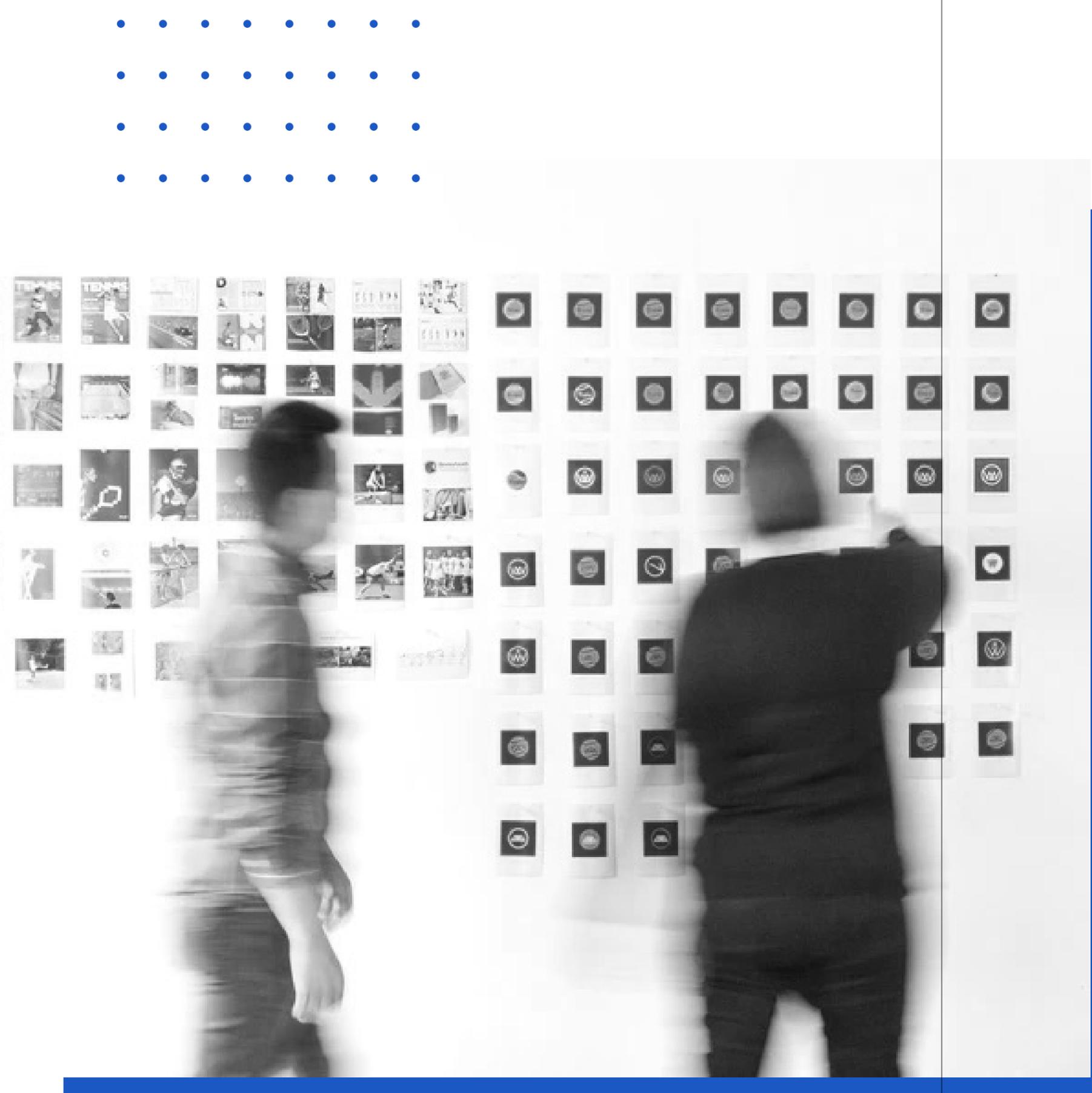


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FOREWORD

In 2020, CallisonRTKL launched the CoLab program to connect diverse partners and strategize around complex issues. A CoLab is a short, collaborative ideation sprint in a virtual or physical format. The goal is to create stronger relationships with partners who have a stake in the future of our industry.

The July 2021 CoLab was developed through a partnership between CallisonRTKL and American Institute of Architects (AIA) research team members. Together, we created a plan to organize research leaders from architecture, engineering, construction firms and academic institutions to tackle the following question:



How might we better link research to practice through greater collaboration between industry and academia?

The goal of the CoLab was to explore a vision for a more integrated future to optimize research and move the industry forward. The intention was to gather a cross-section of experts to discuss how we might organize ourselves, overcome barriers, and create more credibility and rigor around research in the built environment.

And in July 2021, over 65 research leaders from different organizations and universities gathered for two hours to discuss barriers, importance of impact, a long-term vision, and high-potential ideas for action. It was an engaging conversation and ideation session that led to over 500 virtual post-it notes. To everyone that joined us for the first AIA + CRTKL CoLab, the candid conversation and valuable insights would not have been possible without your participation. We're thrilled to move this essential conversation forward and put some ideas into action, together!



Sarah Wicker
CRTKL



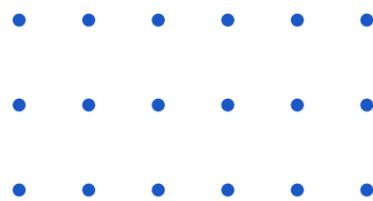
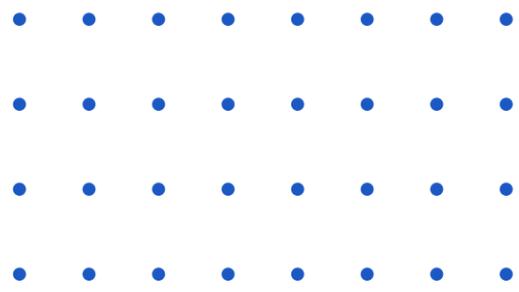
Sam Coats
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OBJECTIVE

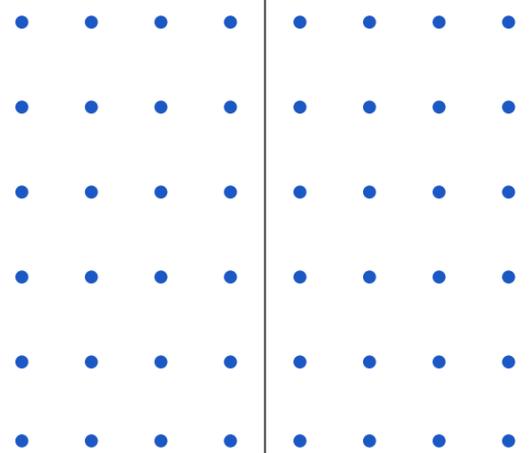
The intent of the discussion was to explore ideas for a multi-disciplinary, collaborative future that moves research forward for our industry. Each stakeholder plays a key role in this discussion and listening and learning from each other is vital for success.

Over the course of the CoLab, we aimed to:

- Discover what success looks like in connecting industry and academia
- Gather cross-industry insights
- Identify a potential long-term vision
- Learn how we might achieve our vision and overcome barriers
- Identify high-potential ideas to prioritize future efforts
- Elevate critical opportunities to the AIA national level
- Start building relationships to set up successful future collaborations



**WHAT DOES
SUCCESS LOOK LIKE
IN CONNECTING
INDUSTRY AND
ACADEMIA?**



PRE-COLAB SURVEY

A pre-survey was sent out to attendees prior to the CoLab. The goal of the survey was to establish a baseline of frequency, type and interest in collaboration between AEC firms and academic institutions. Anecdotal opportunities and challenges that are inherent in crossing the industry and academia threshold were highlighted through the responses. The survey underscored four key findings, creating a better understanding of the current state of collaboration.

Finding #1

Firms use research to develop knowledge and projects, not new services.

Finding #2

Collaboration is only occurring 24% of the time.

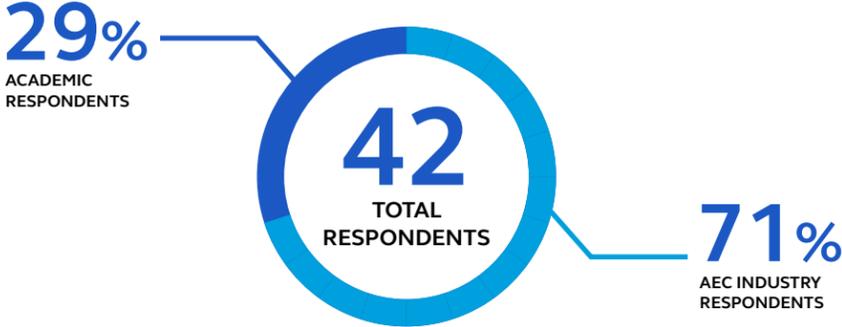
Finding #3

Academia is collaborating directly with end users and building owners.

Finding #4

Relationships exist, but there is a lack of awareness of partnerships.

Survey Respondents Demographics



FINDING #1

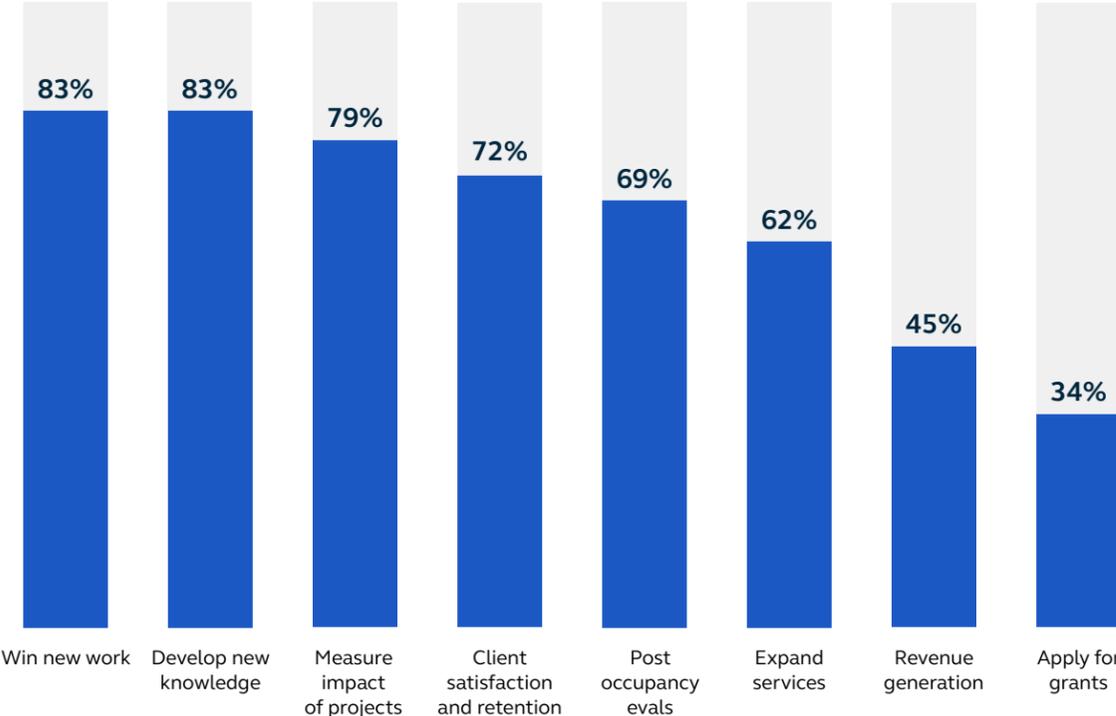
Firms use research to develop knowledge and projects, not new services.



Survey Question:
How is research utilized within your organization?

Key Takeaways:

1. Primary focus is on winning new work, improving existing work and developing knowledge.
2. Research is less likely to expand into new service lines and revenue.
3. Engineering is more likely to utilize research to expand services.



FINDING #2

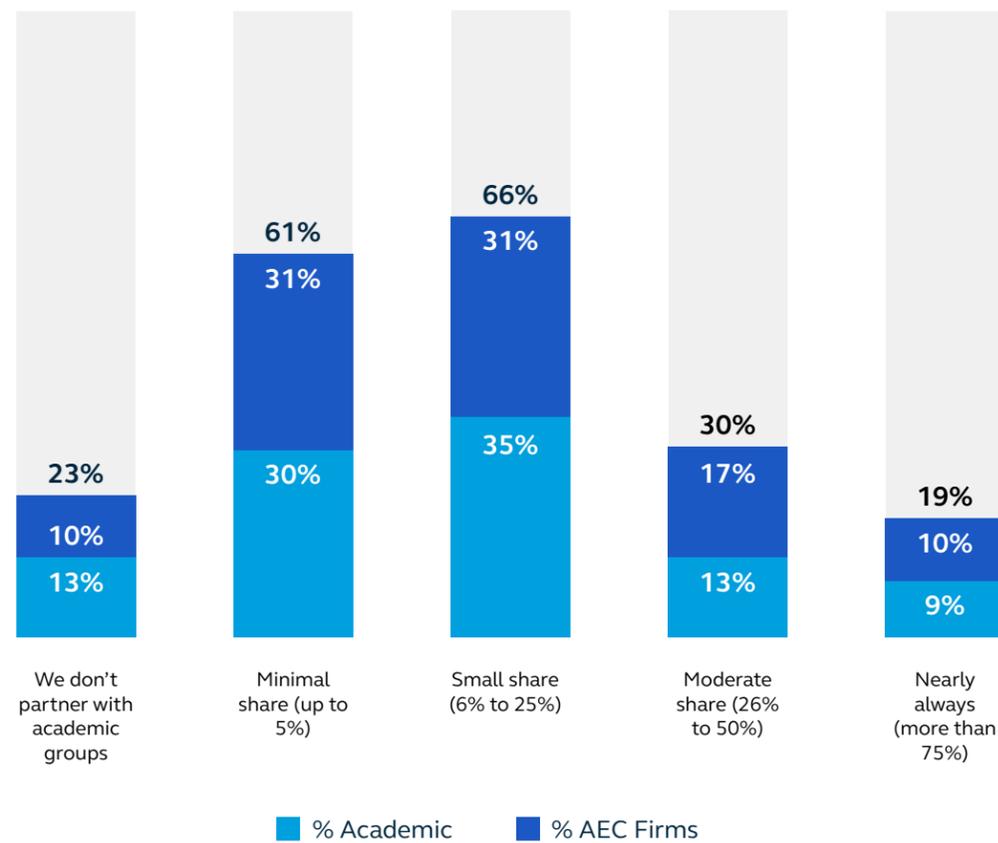
Collaboration is only occurring 24% of the time.



Survey Question:
How often do you currently partner with academic institutions on projects or research?

Key Takeaways:

1. Nearly half of respondents collaborate less than 5% of the time.
2. Academia: Interest correlates with action of collaboration.
3. Firms: Conducting post-occupancy evaluations is most closely related to collaboration with academic partners.



FINDING #3

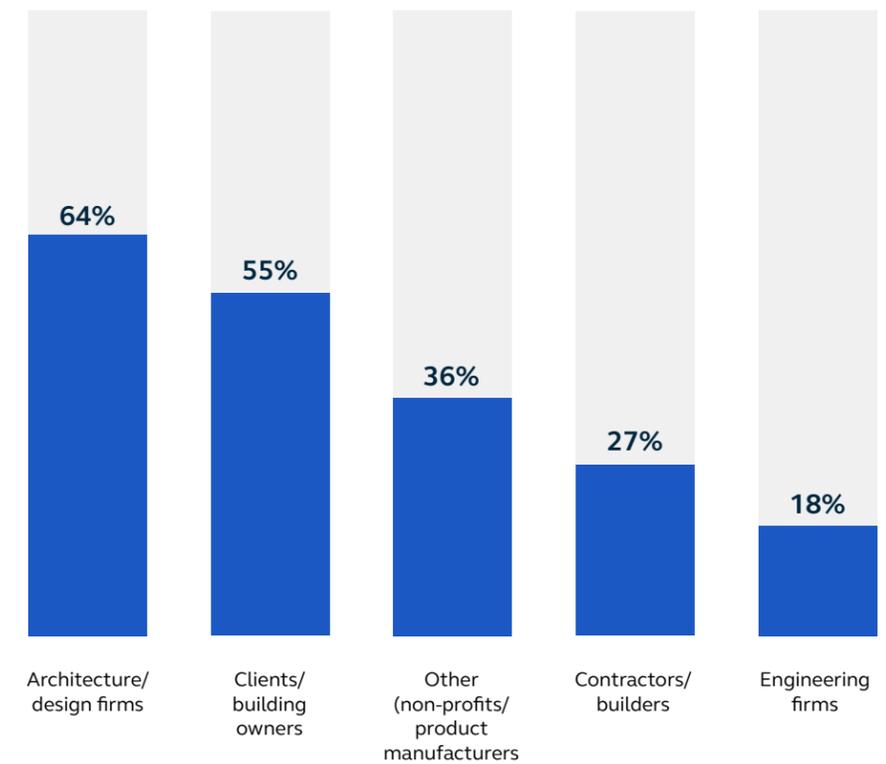
Academia is collaborating directly with end users and building owners.



Survey Question:
Which types of AEC industry firms do you currently partner with on research?

Key Takeaways:

1. Academia is partnering directly with clients and owners.
2. Non-profits are also partnering with academia on research.



FINDING #4

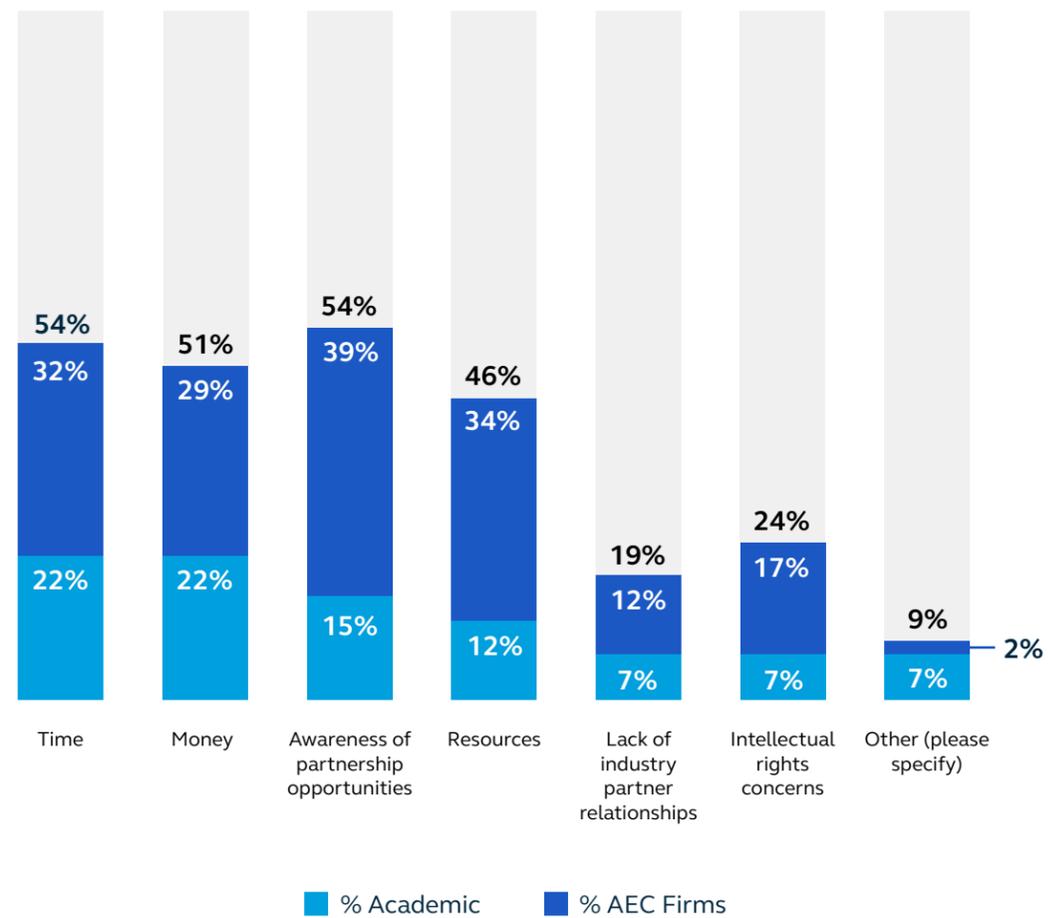
Relationships exist, but there is a lack of awareness of partnerships opportunities.



Survey Question:
What barriers exist in collaborating with partners?

Key Takeaways:

1. Time, money and awareness of partnerships were biggest barriers.
2. Relationships exist, but there is a lack of awareness of partnerships.
3. Firms perceive much higher barriers than academic institutions do.



COLAB DISCUSSION

For the CoLab, we wanted to convene a diverse range of experts that represented all stages of the research process. We leveraged the expertise of individuals from several industries including Architecture and Design, Engineering, Construction, Government/Policy, and Academia.

Each group brought unique insights about research in our industry to the discussion.

ARCHITECTURE & DESIGN

- | | |
|--------------------------------|---------------------------------|
| CallisonRTKL | Herman Miller |
| DLR Group | HGA |
| d.studio | HKS |
| Ennead Architects | IA Interior Architects |
| Erin Persky & Associates | Jay Farbstein & Associates, Inc |
| Eskew+Dumez+Ripple | KieranTimberlake |
| GBBN Architects | Payette |
| Gensler | Perkins Eastman |
| Gould Evans | Plastarc |
| Gresham Smith | SuoLL |
| Hellmuth + Bicknese Architects | Weber Thompson |
| Heider Sustainability Advisors | ZGF |

ENGINEERING

- Arup
- BranchPattern
- Jacobs
- Thornton Tomasetti

CONSTRUCTION

- AECOM
- DPR Construction
- HITT Construction

ASSOCIATION/GOVERNMENT

- AIA
- Association of Collegiate Schools of Architecture
- Centers for Disease Control and Prevention

ACADEMIA

- Clemson University
- Georgia Institute of Technology
- Harvard Graduate School of Design
- Kent State University
- North Carolina State University
- University of Illinois at Urbana-Champaign
- University of Minnesota
- University of Oregon
- University of Washington
- Virginia Tech



KEY ISSUES

The CoLab discussion and pre-survey uncovered some current issues, apprehensions, and barriers to research in our industry. It's clear that there are real-life obstacles to achieve an inclusive, collaborative, shared future.



SOME OF THE KEY ISSUES INCLUDE:



There is a broken knowledge loop between academia and practice.



AEC industries generally do not understand the merits of academic research.



The term “research” is used loosely and ill-defined, undermining the credibility of true research.



Research is not accessible – both to everyday people and to smaller firms that don't have big budgets.



Too much emphasis has been put on ROI as the most important outcome of research.



Research is used too often as a marketing tool and kept too proprietary/not shared.



There is a lack of standard techniques and outcome measures across the industry.



**BY SHARING, WE CAN
START TO SOLVE ONE
ANOTHER'S PROBLEMS.**

– CoLab Participant

COLAB KEY THEMES

Participants were encouraged to speak candidly from their personal experience. By sharing, we can start to solve one another's problems. With three concurrent cross-discipline discussion groups, we covered a lot of ground.

We identified seven key themes:

1. We are committed to an inclusive, interdisciplinary, collaborative future.
2. We want increased research integrity, rigor, and standards.
3. We want an open access, shared future.
4. We want an integrated, research-driven design process to move the field forward.
5. We want to better prepare, engage, and connect students to research based practice.
6. We want to have a measurable impact.
7. We want to collaborate to have new access to funding.

01

WE ARE COMMITTED TO AN INCLUSIVE, INTERDISCIPLINARY, COLLABORATIVE FUTURE.

The largest and most prevalent theme of the CoLab was clear: everyone is interested in collaboration between academia, designers, education and practice. We want to connect with industry peers and share knowledge and skills. We want to better integrate other industries and universities into our organizations. Ultimately, we want to build a stronger culture of research and collaboration for our industry.

These future collaborations will help us accomplish more together than we could as individuals. It will help us expand our capabilities, our ideas and help us push insights further than when siloed. Together, we want stronger research outcomes to make influential change for our industry.

Potential action items:



CREATE A SHARED RESEARCH AGENDA

Aligning our long-term innovation and research strategies, we want an annual research agenda that we all agree on and we all work toward.



MORE INDUSTRY EVENTS FOCUSED ON COLLABORATION

Hackathons, research symposiums, unbiased listening platforms, consortiums, shared presentations, panels—we're interested in anything that brings us together to share both successes and failures and helps us move research forward.



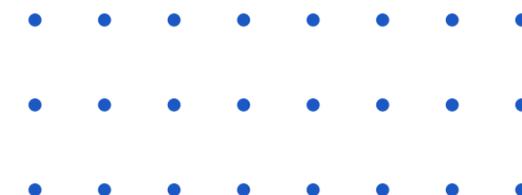
RESEARCH AN OPPORTUNITY BOARD

A centralized job board that everyone can access to learn about opportunities, grants, partnerships. A place that could curate research and find matches between researchers. A place to collaborate.



AN ETHICAL, EQUITABLE, INCLUSIVE FUTURE

Together, we must address the fundamental issues of diversity, equity, and inclusion to maintain trust with those we serve. We also want to establish equity among different sized firms to have access to the same data and research as large-sized firms.



02

WE WANT INCREASED RESEARCH INTEGRITY, RIGOR AND STANDARDS.

Many attendees felt the research conducted in practice could benefit from increased quality and rigor. We want to build the credibility of architectural research among the scientific research base. More rigor gives us greater potential for knowledge, greater recognition, and helps us establish a better understanding of purpose and goals between collaborators.

Potential action items:



ESTABLISH STANDARDS AND CONSISTENT METRICS

Standardized question sets, metrics, evaluations and approaches would help us build greater credibility. Hold ourselves to research quality standards of reliability, transferability, etc.



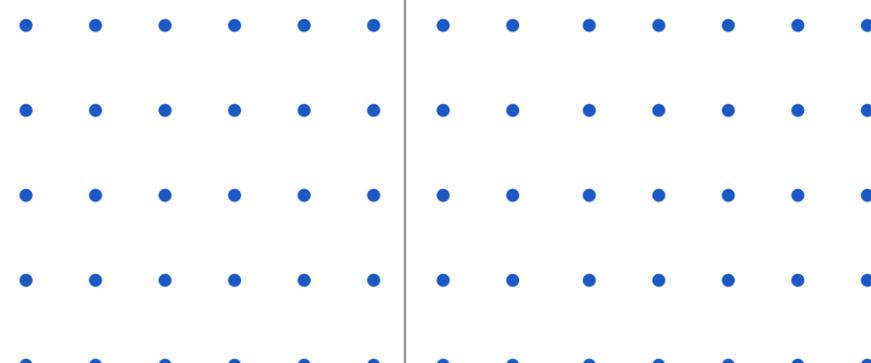
AN OBJECTIVE REVIEW PROCESS

Develop an open review board (an IRB board for architects) to help designers with research rigor. Find an objective peer review process that is agreed upon and respected in both academia and practice.



MORE TRAINING AND ACCREDITATION

Develop research training modules for students and practitioners. Together, we should agree on the basics of a research curriculum. Potentially, develop an official accreditation program for industry research.



03

WE WANT AN OPEN-ACCESS, SHARED FUTURE.

To elevate the design community and move the industry forward, we want to freely share knowledge, information, research and innovation with each other. Research should cease to be proprietary and be democratized. Dissemination and transparency are critical parts of the research process and provide validity to our research. Together, we could also have larger sample sizes to support high performance building research results.

Potential action items:



REDUCE INDUSTRY FEARS AROUND INTELLECTUAL PROPERTY (IP)

If we can address industry fears around liability and IP, we will unblock so much potential collaboration and exploration of key topics. Change the business model and mindset that research is IP that gives architecture firms the “competitive edge.”



SHARE OUR FAILURES

Failure is part of research. To learn, we could share failures with each other regularly or create an industrywide database of failed outcome research/lessons learned.



FRAMEWORK FOR COLLECTING DATA AND A SHARED DATABASE/LIBRARY

To make research accessible, determine an industry-wide framework for collecting data and create a centralized data repository. Create a database of non-digital research studies. Develop a consistent format for archiving projects across firms that are linked to outcomes—case studies that can be comparable.



TACKLE POST OCCUPANCY EVALUATIONS (POES) AS AN INDUSTRY

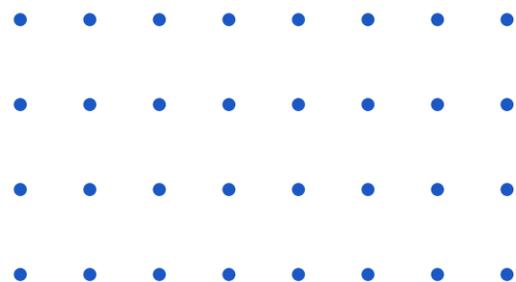
More data needs to come from comprehensive POEs – including ethnography. Create consistent standards around POEs so that we are better able to benchmark building types across multiple firms and locations.

04

WE WANT AN INTEGRATED, RESEARCH-DRIVEN DESIGN PROCESS TO MOVE THE FIELD FORWARD.

The current design process doesn't value or prioritize research. Research should be the first step that constitutes any design or construction project. Rigorous research in practice moves the field forward—generating more evidence that leads to effective design strategies.

A more integrated, research-driven design process will yield more informed decisions, true improvement for the industry, help keep our work relevant and create better spaces for occupants and communities.



Potential action items:



CLEARLY DEFINE RESEARCH FOR DESIGN

Develop an industry-wide standard definition of research for design. Explain why we need it, what are the best forms, what can advance outcomes and how it integrates into the design process.



PUT RESEARCH INTO PRACTICE

Utilize built projects as a test lab for research ideas and findings. Partner with academic researchers to put research into practice in the built environment. Support research by providing real-world testing opportunities.



RESEARCH AT THE KICKOFF

Formal projects should start with research potential and goals and identify potential partners.



REVIEW/UPDATE STANDARD INDUSTRY CONTRACTS

Review the standard contract and the relationship and timeline it sets up for everyone on a project (transactional vs relational documents). This unpacks time and billing, which is key to enabling time for research.



RESEARCH SHOULD BE PAID

As an industry, we should be articulating the value of research to our clients and partners, and be compensated for that work, whether through design work fees, grants, etc.

05

WE WANT TO BETTER PREPARE, ENGAGE, AND CONNECT STUDENTS TO RESEARCH-BASED PRACTICE.

To bridge the gap, we need to bring research into the academic design studio in a way that connects and collaborates with practice. We want to develop research-minded practitioners for the future and create clear paths to research in practice.

Ultimately, we want better integration between universities and design firms, creating a knowledge loop between prototype and practice. We want more students to see a path and place for themselves in the AEC industry, and not just as architects.

Potential action items:



MATCHING SYSTEM FOR STUDENTS AND FIRMS

Align students with interest areas and projects. Firms could sponsor architecture graduate and PhD students for practice-based research. Create opportunities for graduate students to engage on real projects.



INTEGRATE RESEARCH INTO THE ARCHITECTURE CURRICULUM

Developing a research and practice curriculum where students learn in offices and in school—putting research into practice. Modernize the education to work experience, allowing people a better understanding of how research is applied in practice.



PRACTITIONERS AS AFFILIATES/EDUCATORS

Research methods courses in universities could be taught by both academics and practitioners. Make interested practitioners affiliates in academic research centers—better connecting practice to academia.

06

WE WANT TO HAVE A MEASURABLE IMPACT.

It continues to be important to prove the impact of design on experience, performance, and research that is rigorous helps. As an industry, we want to move beyond well-intentioned design, to design with measurable, positive impact. Design decisions should be backed up by proof of concept and measurable outcomes.

It's important for us and our clients. Not only do clients want more proof of impact, but evidence-based design helps clients invest in the right decisions.

It's also important for us to make a positive impact on society. What we do affects people and the environment in significant ways—we want to reduce the impact of architecture and buildings on climate change and help build equitable environments for larger groups of stakeholders. Ultimately, we want to utilize research to solve problems larger than ourselves.

Potential action items:



IDENTIFY AND HIGHLIGHT OUR OUTCOMES

Better identify the return on investment for research by tying our work to design processes, factors and measurable outcomes. Highlight these outcomes in more sectors beyond healthcare.



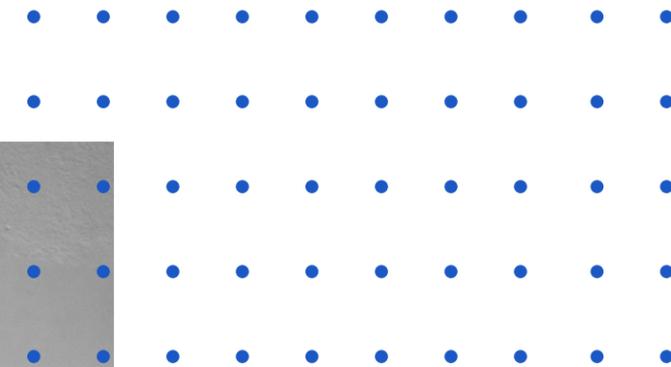
PUBLISH AND SHARE THE IMPACT EXTERNALLY

Develop co-authored publications and industry presentations or create an ongoing peer-reviewed research publication read by both AEC and academia. Researchers should be influencers.



SHIFT OUR INDUSTRY THROUGH IMPACT

Create more paths for research experts and expanded services by empowering designers to become more qualified and billable researchers. Impact regulatory policy for the good of our industry.



07

WE WANT TO COLLABORATE TO HAVE NEW ACCESS TO FUNDING.

Together, we need to figure out how to monetize the relationship for both academia and industry so that it is sustainable. Currently, the lack of funding for research puts increased fee pressure on firms and we need new ways to incentivize research. If we collaborate, we are more competitive for federal and foundation research and create more opportunities for resources.

Potential action items:



IDENTIFY TAX INCENTIVES

Better understand and educate each other on available tax incentives, provide tips for how to resource them.



INDUSTRY REQUIREMENT

Together, agree to and create an industry requirement (or strong expectation) that 5% of revenue is invested in research.



COLLABORATE ON GRANTS

Utilize grants to create teams across industries—encourage design research through rewards. National Institute of Building Science (or similar) could fund research grants that require both academics and practitioners.



**WE NEED TO SHARE
OUR SUCCESSES,
FAILURES, DATA
AND INSIGHTS.**

– CoLab Participant

CONCLUSION

With advances in technology, sustainability, design, and materials, it is critical for our industry to move research forward, together. The strong engagement and positive spirit throughout the discussions reinforce that there is momentum and commitment to have a more open, connected, and collaborative future. The virtual CoLab allowed us to kick-off these multi-disciplinary conversations to approach an issue that cannot be solved by independent organizations.

We learned that:

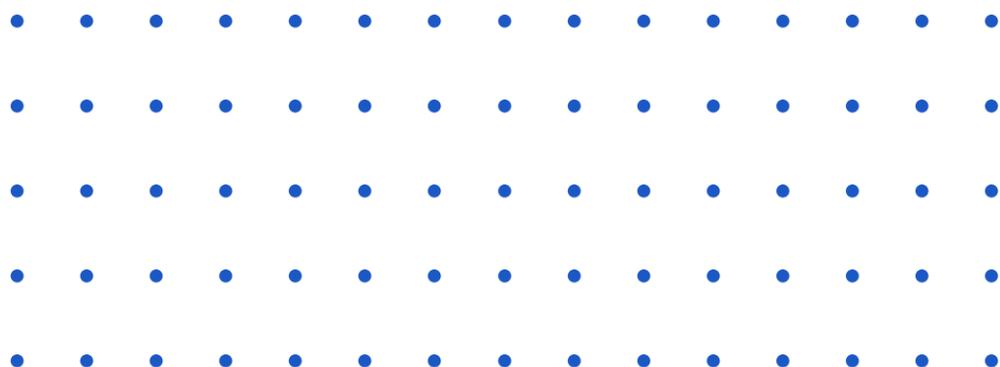
1. **We know we need to change.** Together, we believe we can make more of an impact and shift our industry for the better.
2. **We need some guidelines.** Rigor, standards and metrics are essential for developing credibility for research in our industry.
3. **Education is essential.** Teaching both students and designers about the research process and the value of research will enable us to expand our impact.
4. **Sharing is essential for success.** To unlock the true potential of research, we need to share our successes, failures, data and insights.

WHAT'S NEXT

In a commitment to continue and progress this critical conversation, we engaged participants in a post-CoLab survey. The purpose was to communicate the primary themes (condensed from this report) and better understand interest. Respondents noted a high level of interest to remain involved in moving this conversation forward. In fact, 95% of post-survey respondents indicated they are interested, 18% as leaders and 77% as participants.

MOVING THE CONVERSATION FORWARD

We asked respondents to select which of the key findings noted in this report they would be most passionate about moving forward. Responses indicate we must first focus on the fundamentals of collaboration, talent sharing and data access. This will open the opportunity to improve processes and explore new funding sources.



Key Finding 1: Nearly half of the respondents are interested in focusing on the **fundamentals**, highlighting that a good research foundation needs to be established.

55%

GREATER COLLABORATION & ALIGNMENT ACROSS INDUSTRY

45%

INCREASE OPEN ACCESS TO RESEARCH & DATA

45%

CONNECT STUDENTS & ACADEMIA IN PRACTICE

Key Finding 2: There was a moderate amount of interest in improving **existing systems** and **research processes**.

41%

IMPROVE RESEARCH PROCESS & APPLICATION

41%

MEASURE RESEARCH IMPACTS & OUTCOMES

36%

INDUSTRY RESEARCH STANDARDS FOR METHODS, QUALITY AND RIGOR

Key Finding 3: **Ancillary topics** to fundamentals and processes garnered less interest and prioritization from respondents.

9%

RESEARCH FUNDING SOURCES AND METHODS

5%

DIVERSITY, EQUITY AND INCLUSION IN ETHICAL RESEARCH

5%

ROLE OF INDUSTRY ASSOCIATIONS



ENGAGING WITH AIA PLANNED INITIATIVES

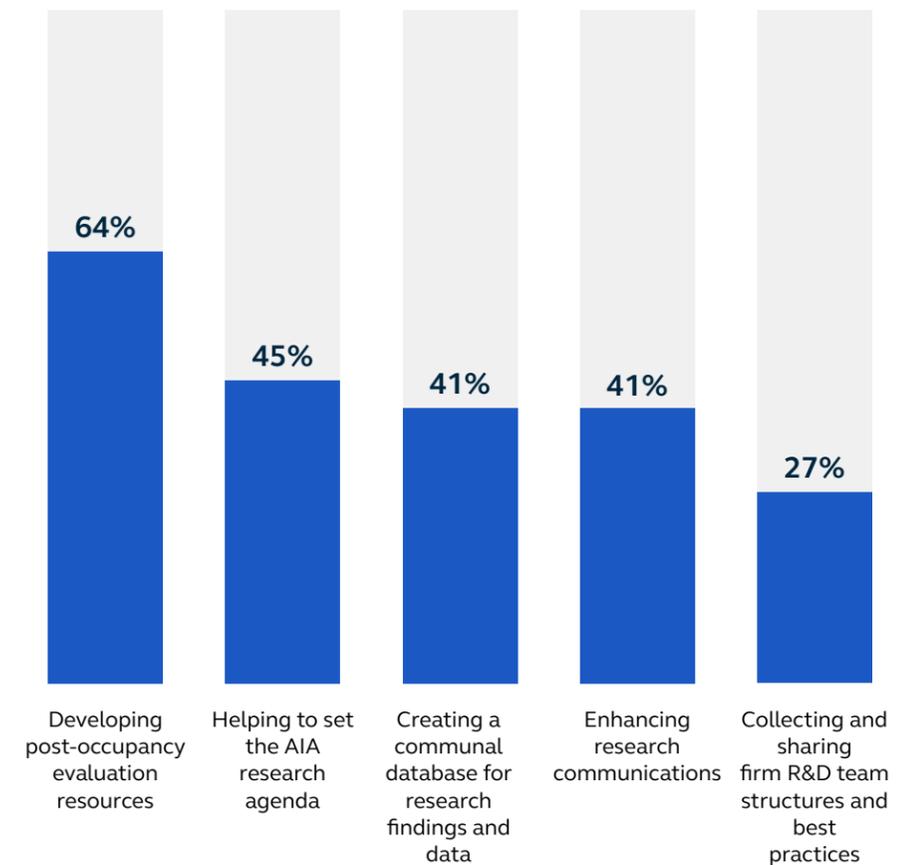
Knowing that great work is already underway by the AIA, we asked respondents the following question:

Which of the following AIA planned initiatives would you be most interested in supporting? (select your top 3).

Respondent data uncovered two major findings:

Finding 1: There was a high level of agreement to support post-occupancy evaluation resources.

Finding 2: There was a medium amount of support for setting a research agenda, creating common databases, and enhancing communications.





RESOURCES

For some helpful resources and networks, see below:

[AIA's Research Agenda](#)

[Building Research Information Knowledgebase \(BRIK\)](#)

[AIA Upjohn Grants](#)

[AIA Latrobe Prize](#)

[AIA Academy of Architecture for Justice POE toolkit for courthouses](#)

[AIA's Framework for Design Excellence Design for Discovery resources](#)

[AIAU Research Presentations](#)

[2021 Intersections Research Conference](#)

[2020 Intersections Research Conference](#)

[Technology | Architecture + Design \(TAD\) Journal](#)

[The Journal of Architectural Education \(JAE\)](#)

[AIA Best Practices](#)

CallisonRTKL, a global architecture, planning and design practice, began over seven decades ago and has evolved into a cultural agency to advance positive outcomes in our local and global communities. Through a human-centric design approach, our team addresses the imperatives of resiliency, well-being, mobility and technology and their influence in the built environment.

AIA advocates for the value of architecture and give architects the resources they need to do their best work. Our work drives positive change through the power of design. The AIA helps empower architects to use and engage in research to advance their firm, profession, and industry.

Learn more at www.aia.org.



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