Sub-Committee Report

7.9.2020

Identity

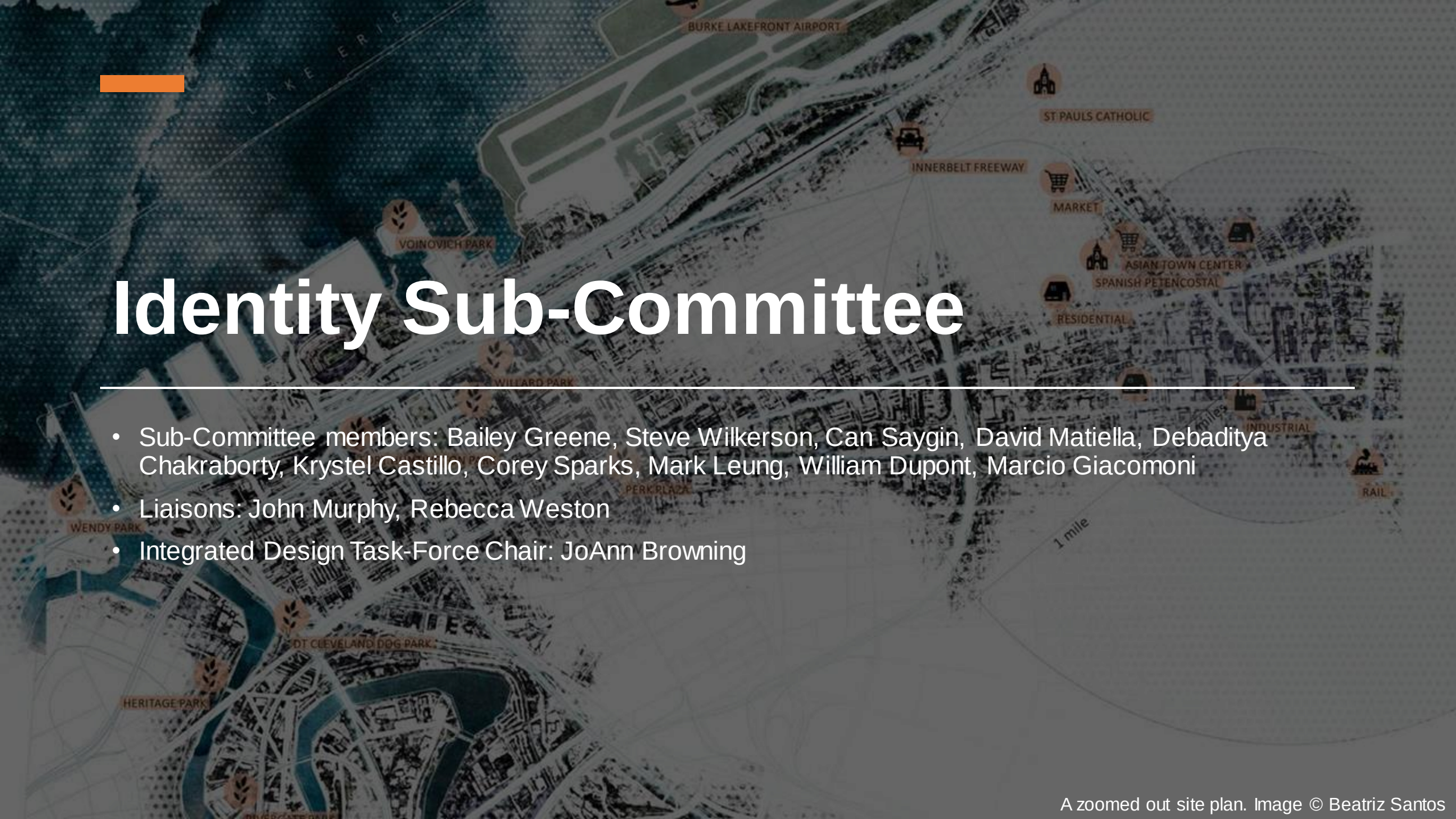
"Who We Are" Sub-Committee

Thesis Review: Beatriz Santos Challenges the Built Environment to Redefine Urban Identity Through Nature - LINK

Garden Cosmologies: Curated Nature in the Contemporary City. Image © Beatriz Santos

Identity Sub-Committee

- Sub-Committee members: Bailey Greene, Steve Wilkerson, Can Saygin, David Matiella, Debaditya Chakraborty, Krystel Castillo, Corey Sparks, Mark Leung, William Dupont, Marcio Giacomoni
- Liaisons: John Murphy, Rebecca Weston
- Integrated Design Task-Force Chair: JoAnn Browning



A zoomed out site plan. Image © Beatriz Santos

Objective / Purpose

- To understand “who we are” as two colleges coming together, to create a critical awareness of our own nature and the way in which we think about ourselves
- Inherently an introspective undertaking and the basic task is metacognitive in nature
  - First step in metacognition - identifying one's own learning style and needs
- To construct a narrative for how we think about ourselves using qualitative and quantitative information

Qualitative Methodology

The Knowledge Cafe

- An internationally recognized format and a conversational process
- Allows participants to share experiences, learn from each other, build relationships and make a better sense of a rapidly changing situation to help improve decision making
- It is a *descriptive* approach toward knowledge discovery rather than a *prescriptive* approach

Knowledge Cafes

Two types of Knowledge cafés emerged:

- Faculty Cafés
  - A series of three conversations with focused discussion topics
- Student Café
  - A single session of student leaders or Knowledge Champions

- Topics for each discussion were decided by the sub-committee

Faculty Knowledge Cafes

- Series of 3 Cafés. 90 minutes
- Dates – June 11th, 18th and 25th
- Attendees
- Three dominate themes emerged, prompted by discussion questions:*
  - **Core strengths**
  - **Added values and synergies of integration**
  - **Future opportunities made possible by integration**

*Consolidated notes

Dominate Theme 1: **Core Strengths**

- Our degree programs and the professions we serve / clear meanings
- The value of the civic learning lab: San Antonio itself
- Our connection to the community
- Our international programs
- Engagement, outreach, design-build, and project leadership in the regional built environment.

*Consolidated notes

Dominate Theme 2: **Added values and synergies of integration**

- Students need interdisciplinary training to be leaders in their domains
- Student exposure across disciplines
- Capitalize on opportunity for multi-disciplinary endeavors
- Incentivize research and new programs building on synergies
- International programs and study abroad
- Integrated process can accelerate innovation
- Integrated design and Equity

*Consolidated notes

Dominate Theme 3: **Future opportunities made possible by integration**

- Excellence and innovation
  - Offer integrated content
- Leadership and collaboration
  - Build leaders
  - Student ambassadors
  - Involvement with industry
  - Involvement with the city itself and civic leadership
- Integrity, inclusiveness, and respect
  - Illuminate equity
  - Teach research ethics
  - Explore all aspects of sustainability: social, environmental, economic, good governance
  - Encourage and support ethical endeavors within the core mission of each discipline

*Consolidated notes

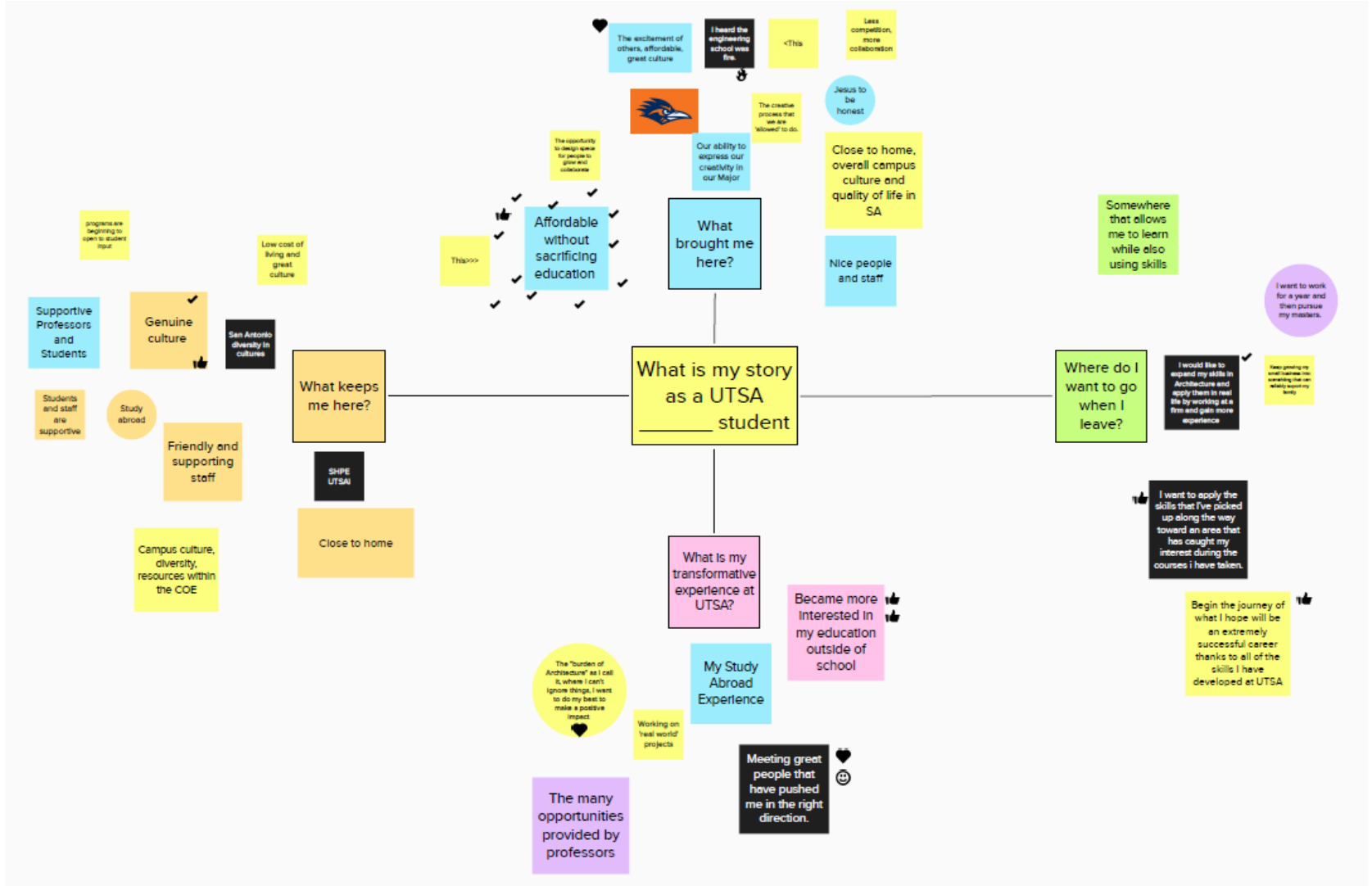
Student Knowledge Cafe

- 90-minute session on Wednesday, June 17th With 20 student participants from each college*
- Introduction from Provost Espy and broad vision from Dean Browning
- Student attendees
- Themes
  - *What brought you here as a student?*
  - *What keeps/has kept you here as a student?*
  - *Where will you be when you leave here and where are you going?*
  - *What has been your transformative educational experience at UTSA?*
  - 12 minutes was spent per question in the break-out groups and mind map creation using Mural app in the break-out groups
- Closing statements and call to action

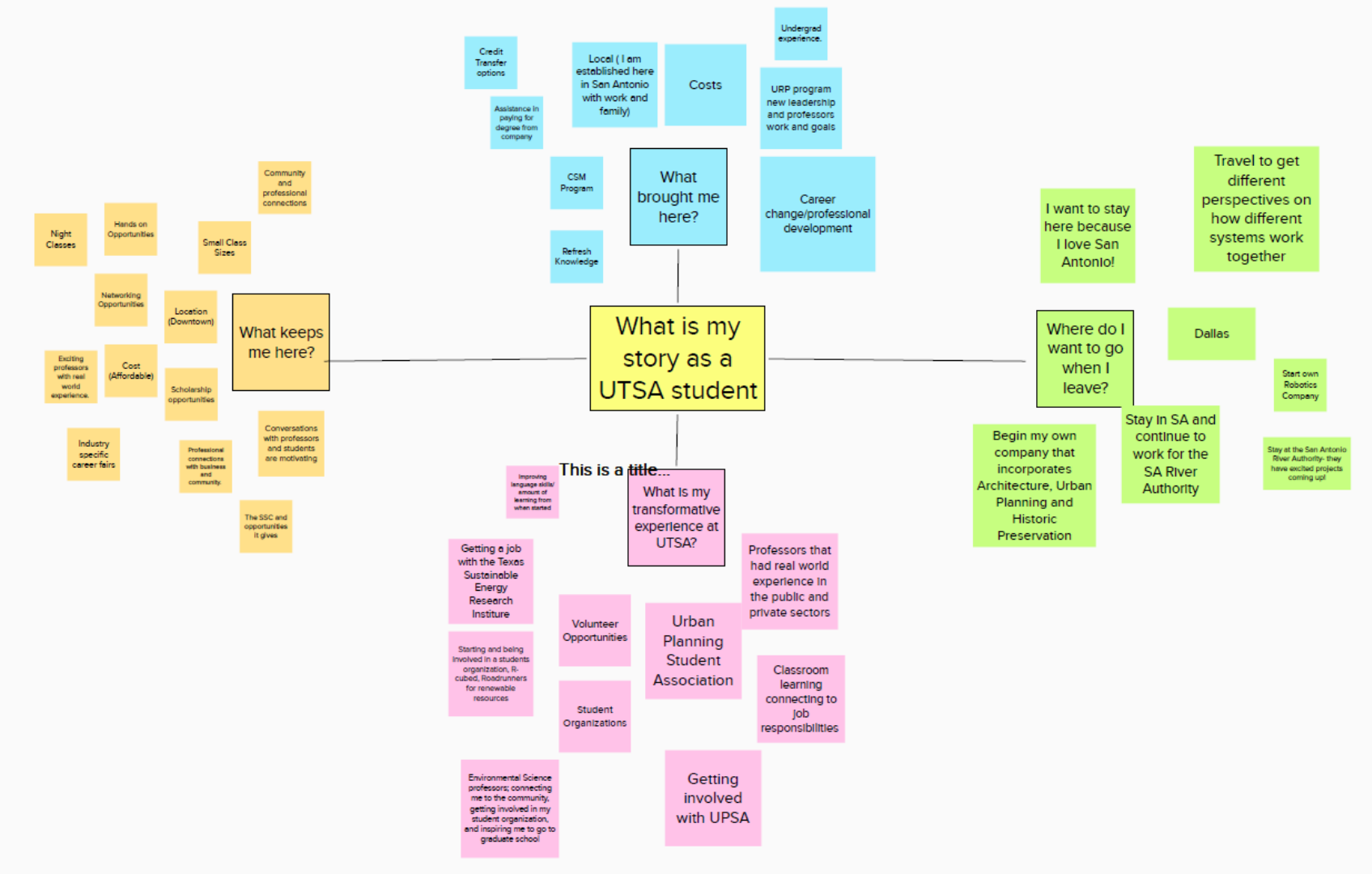
*Complete Agenda and run of show

Mind Map Group 1

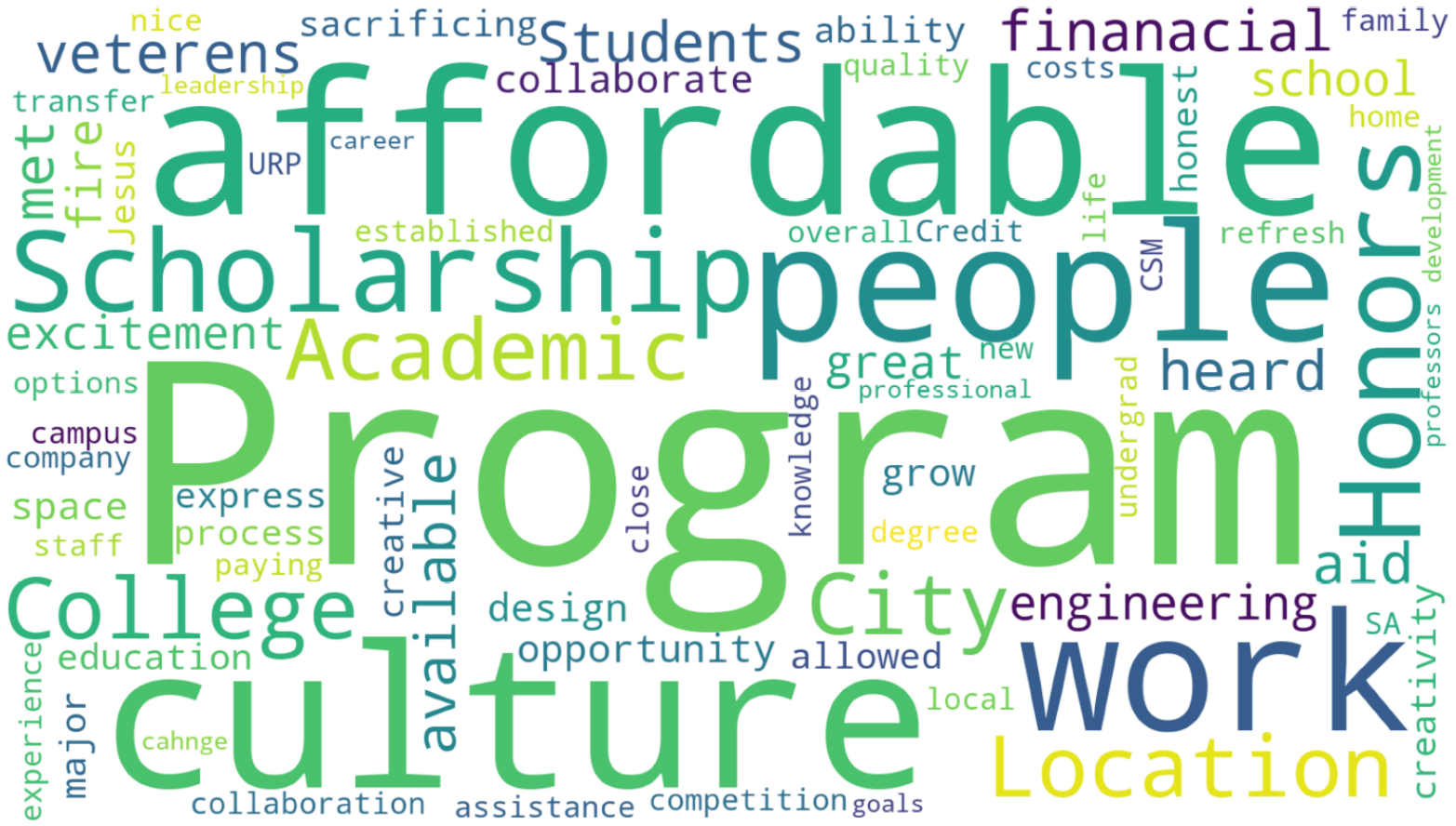
Mind Map Group 2



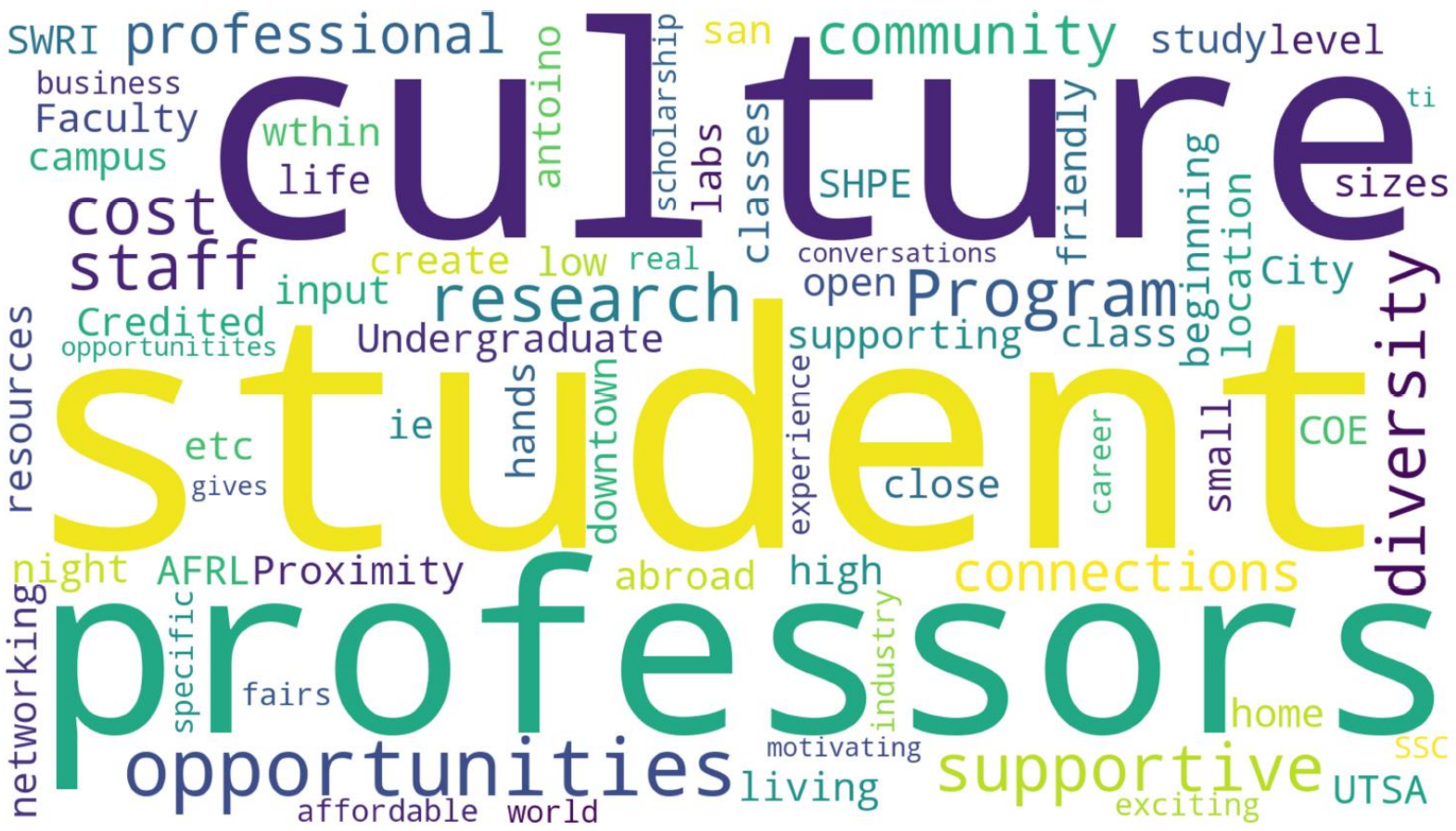
Mind Map Group 3



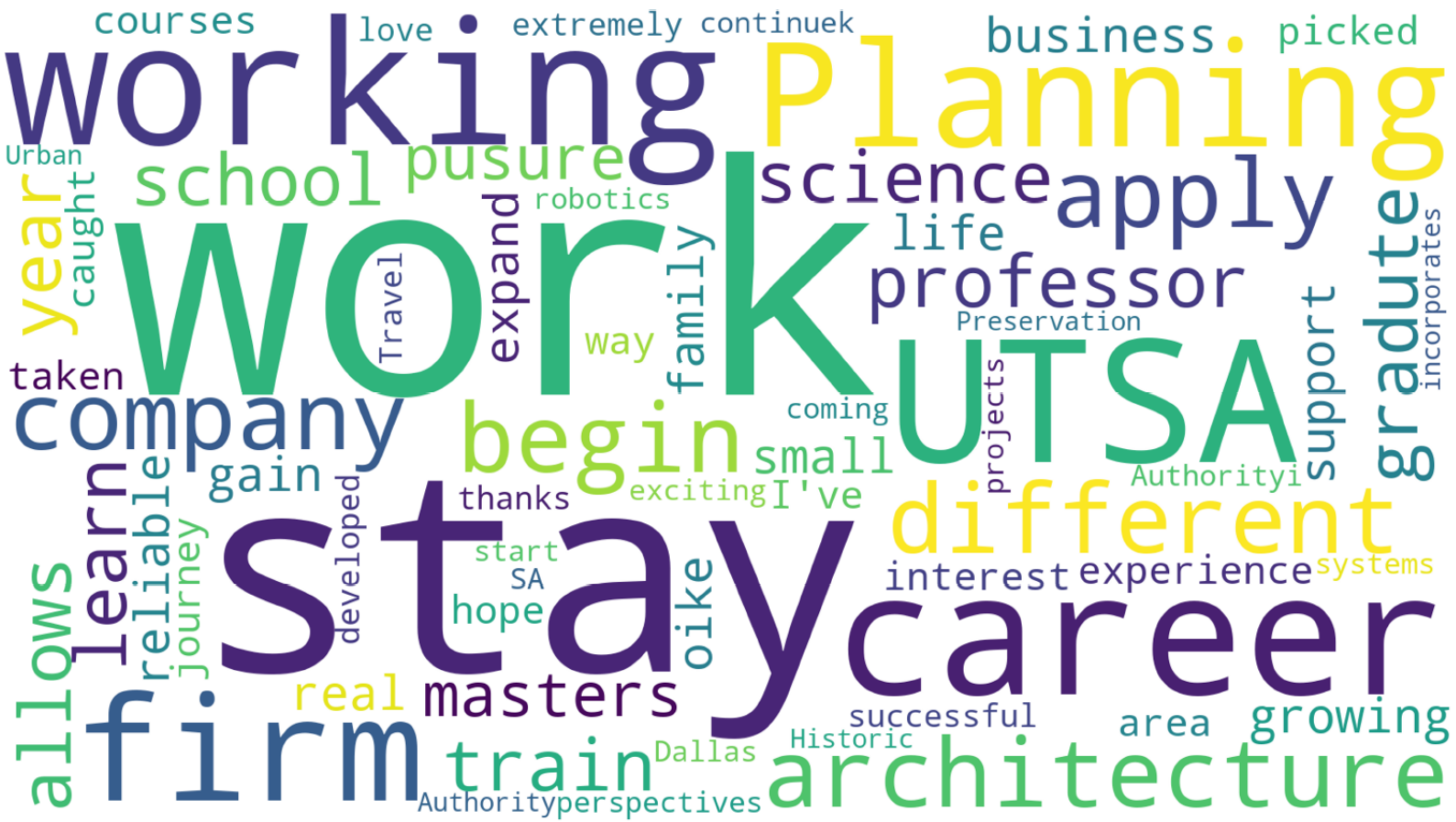
What brought me here



What keeps me here



Where am I going



What has been my transformational experience at UTSA?

Student Knowledge Cafe

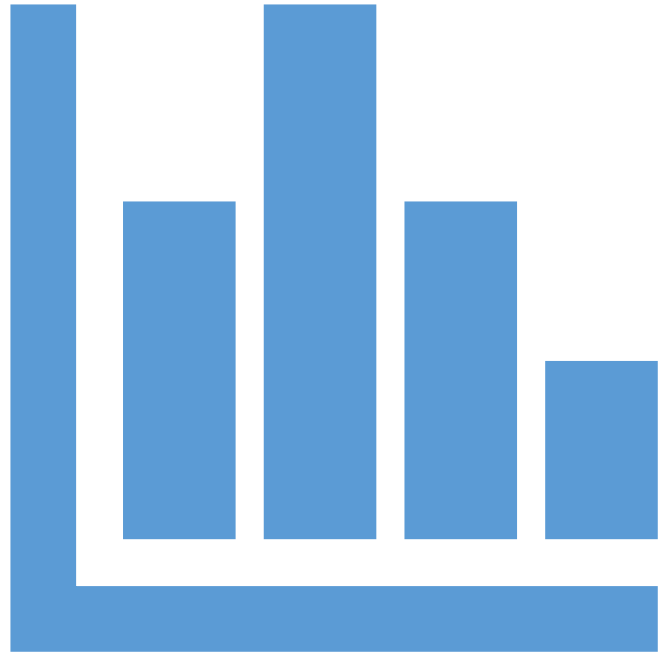
- Call to action
  - Be empowered
  - Be intentional
  - Be empathetic
  - Be a leader

  - Engineer, design, build, and plan the future you want for yourself and for others

*Complete Agenda and run of show

Quantitative Analysis of IR Data

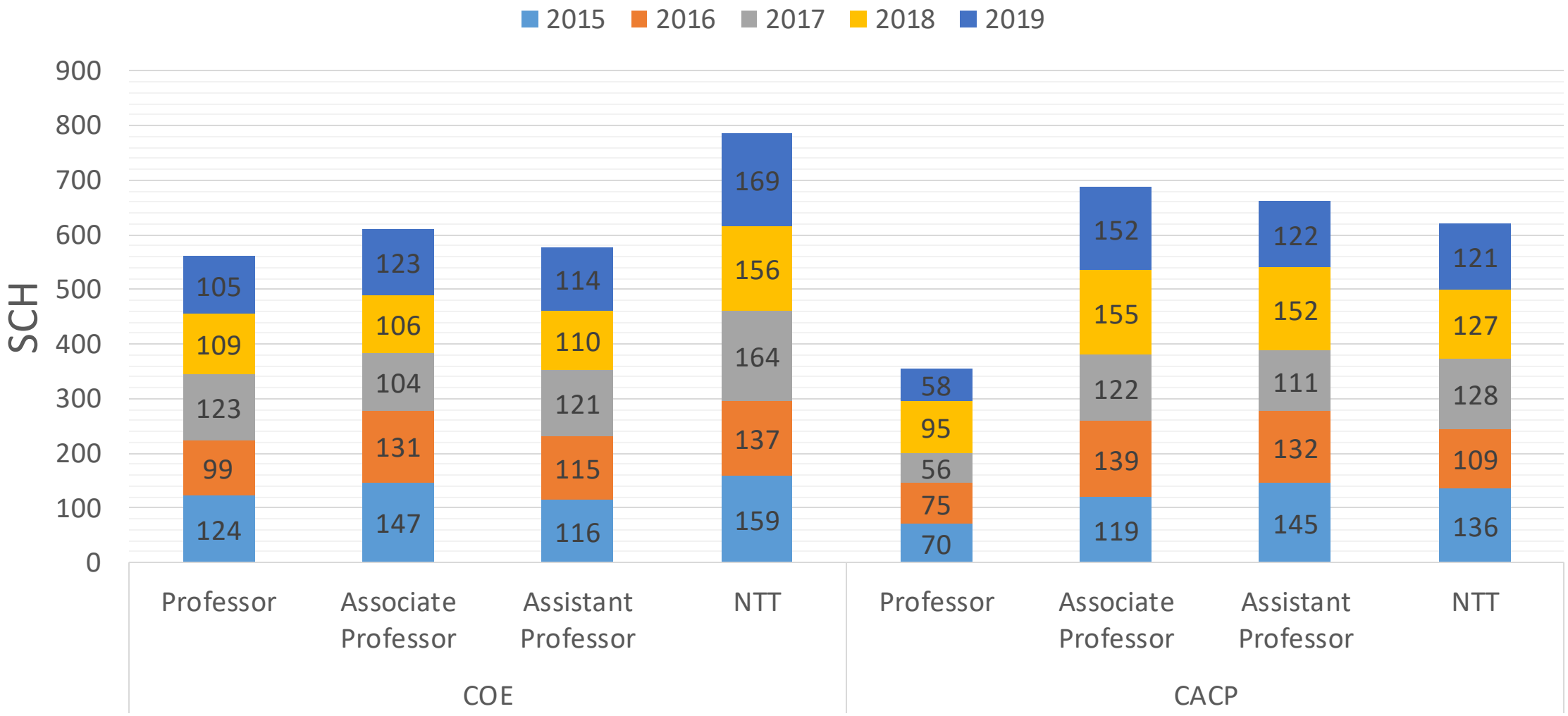
Numbers of Students
Average SCH by Faculty Rank
Research Proposals, Awards, Success Rate, and Expenditures



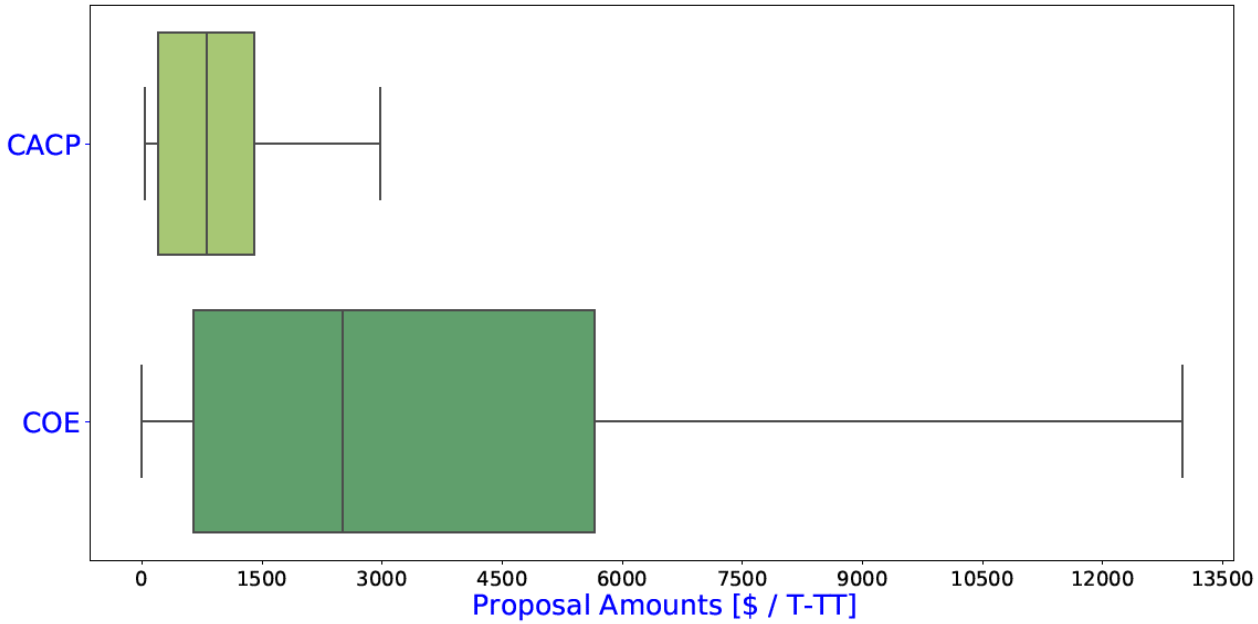
Numbers of Students

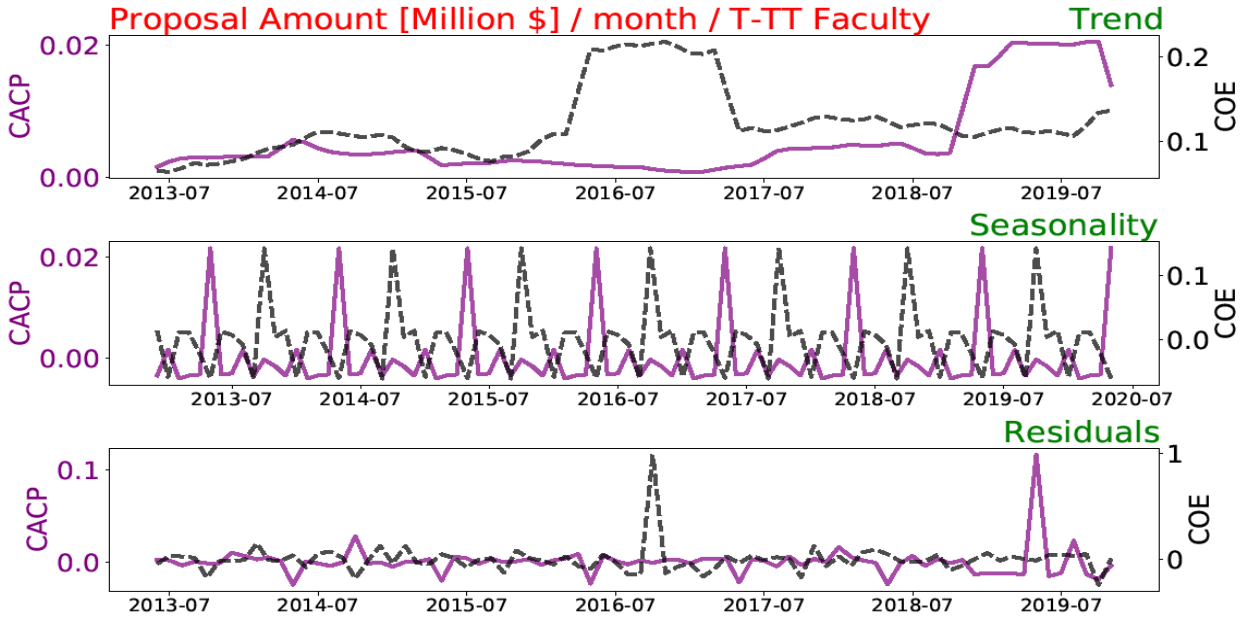
FALL 2019 DATA	UTSA	College X	% of UTSA
Total students	32594	4003	12%
Ugrad	27932	3288	12%
M	3300	312	9%
PhD	905	227	25%
T/TT	628	105	17%
Research $	$ 80,700,000	$ 17,579,070	22%
2019 1-yr Retention	77%	78%	1.01
2018 cohort	4482	689	15%
2019 6-yr Grad	51%	54%	1.05
2013 cohort	2686	375	14%

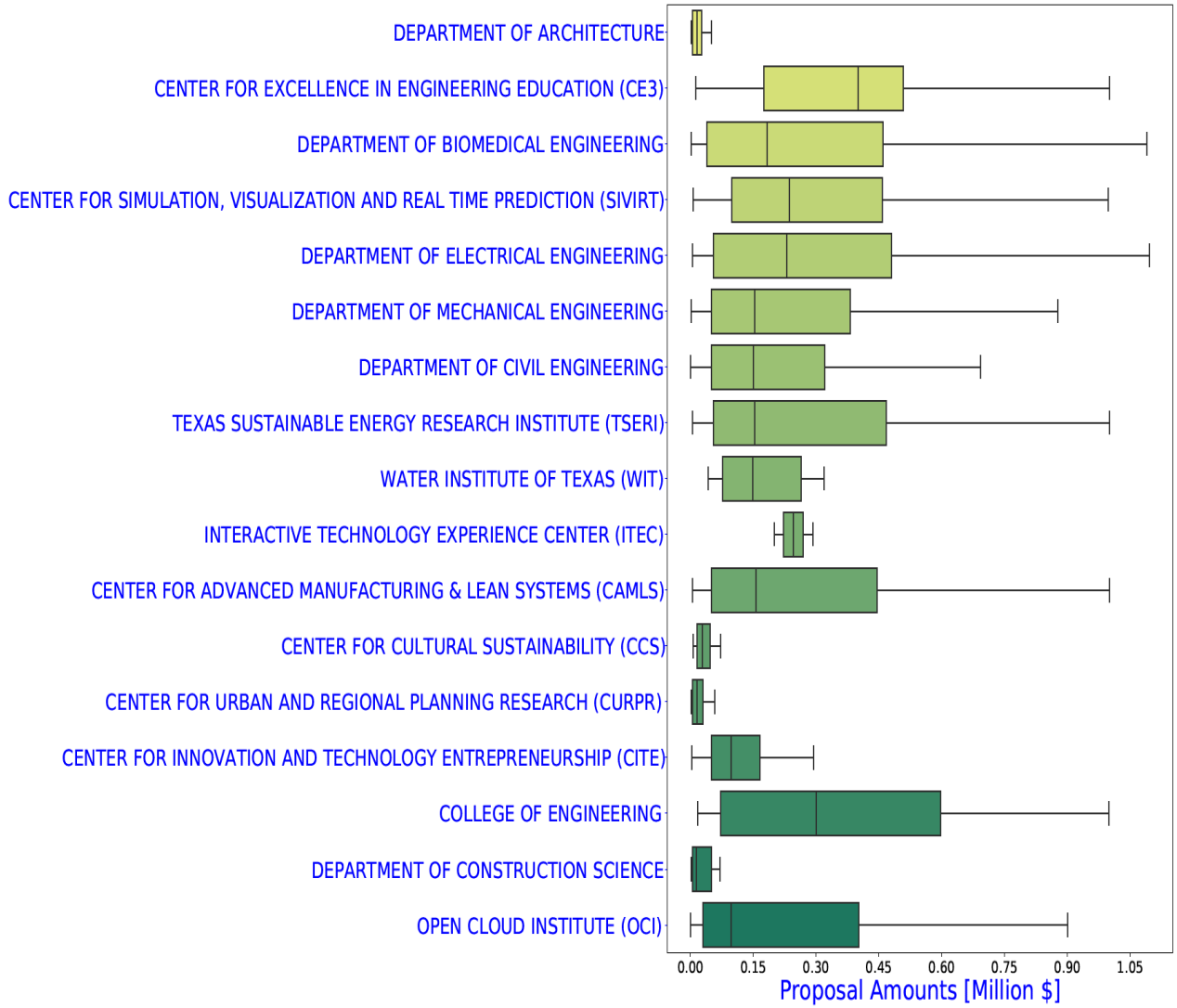
Average Semester Credit Hours (SCH) by Faculty Rank



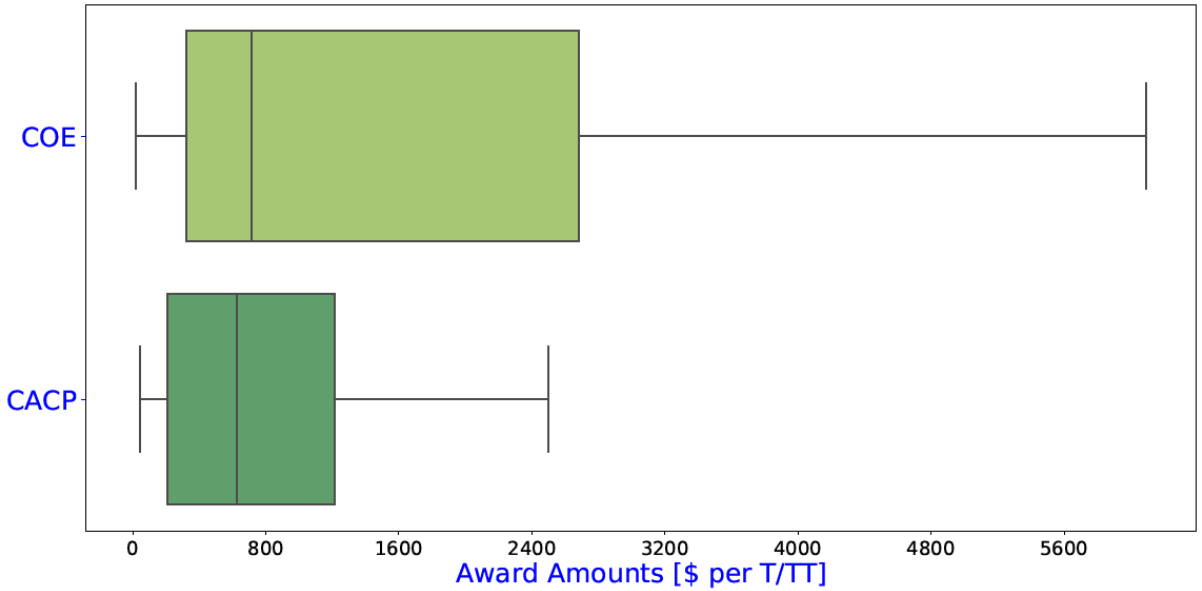
Research Proposal Analysis

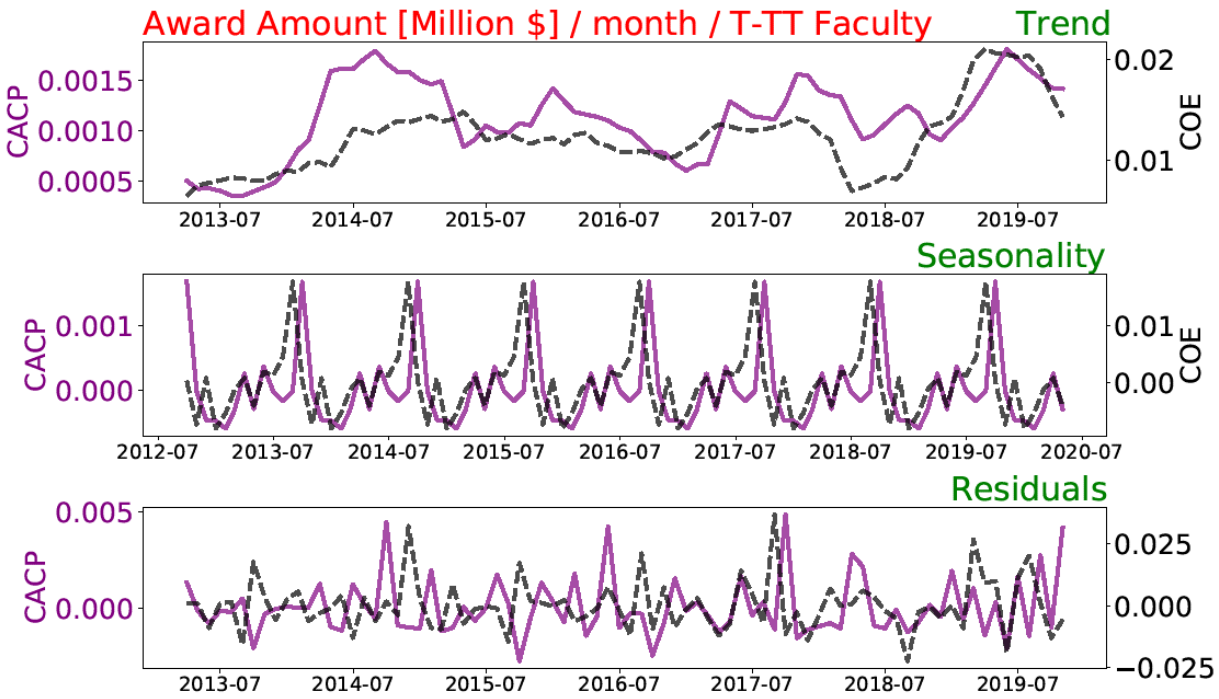


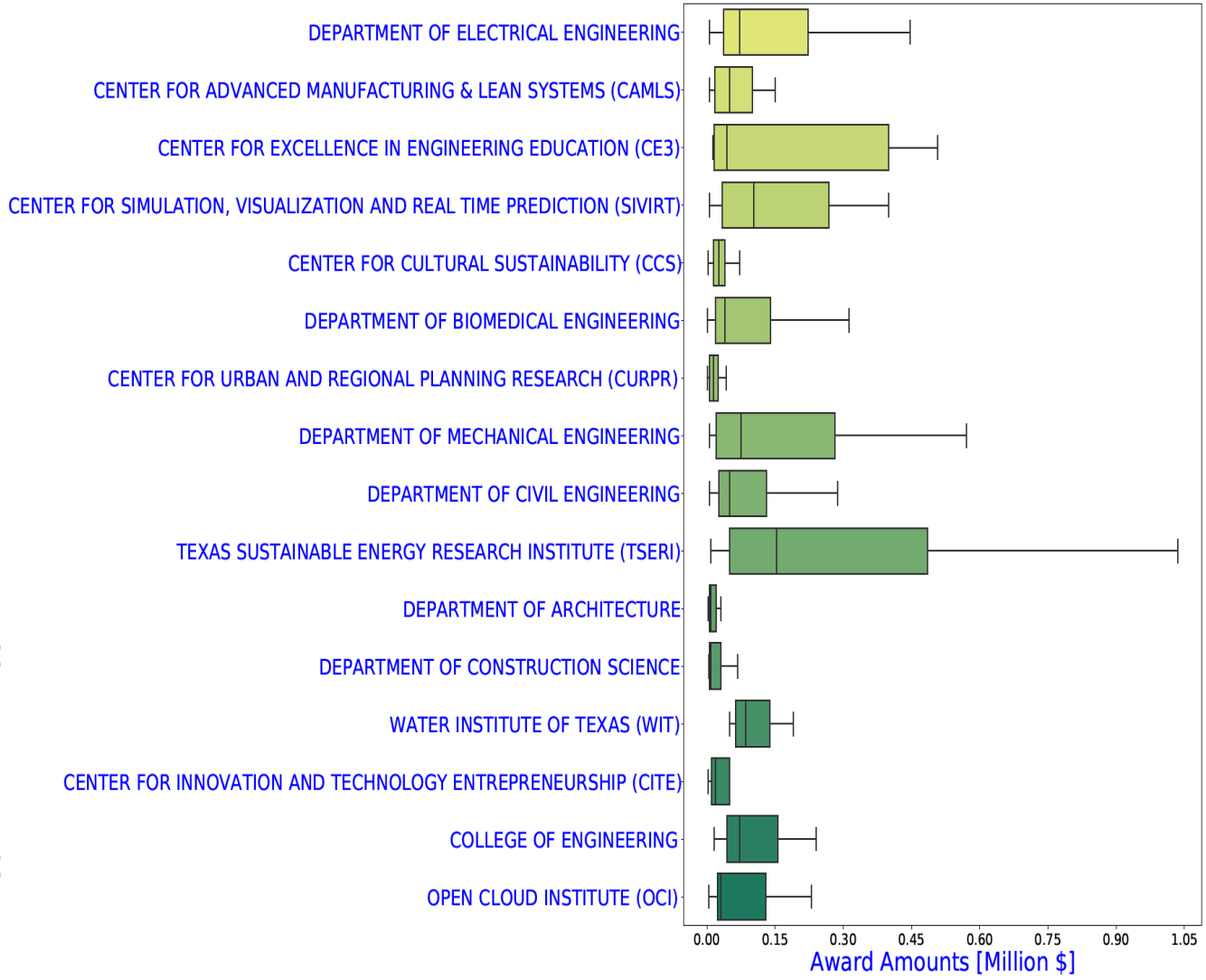




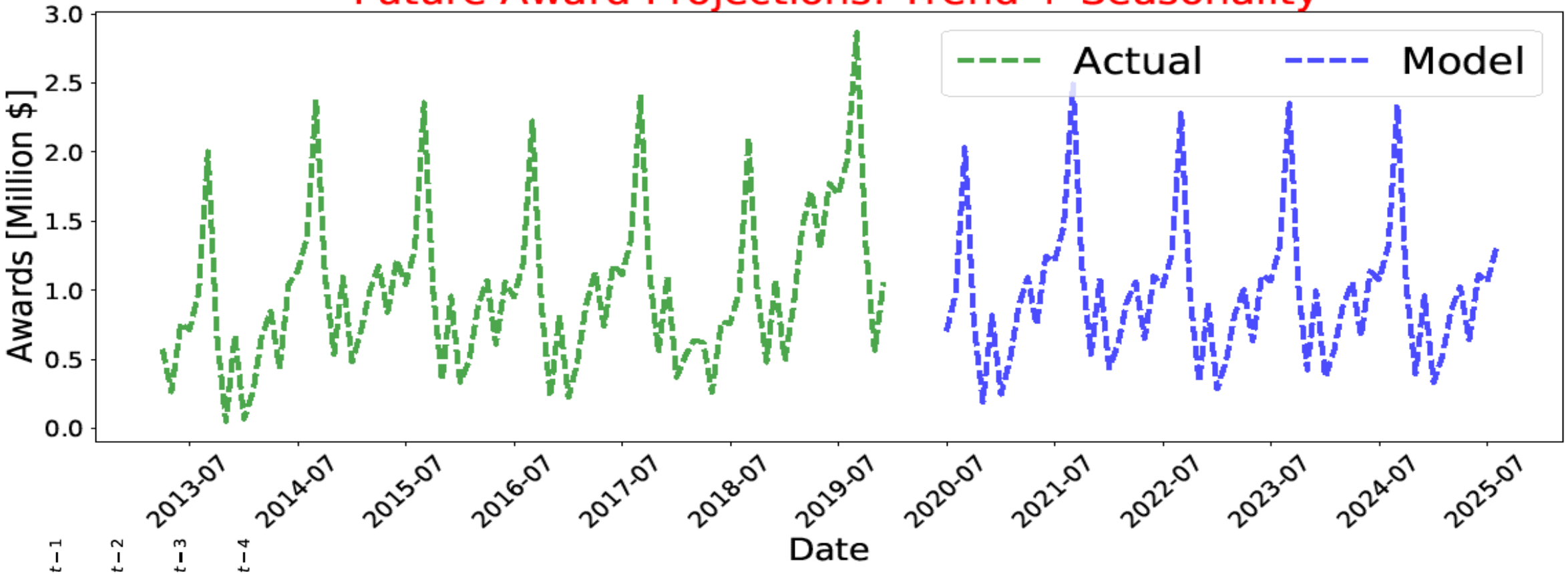
Research Awards Analysis

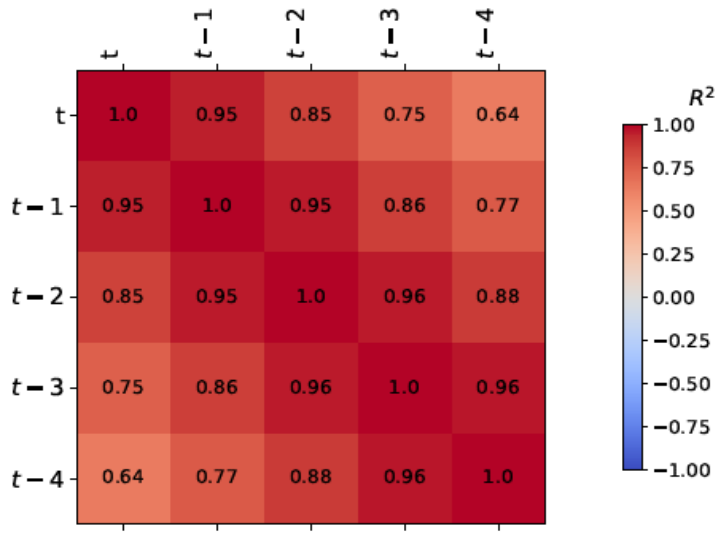






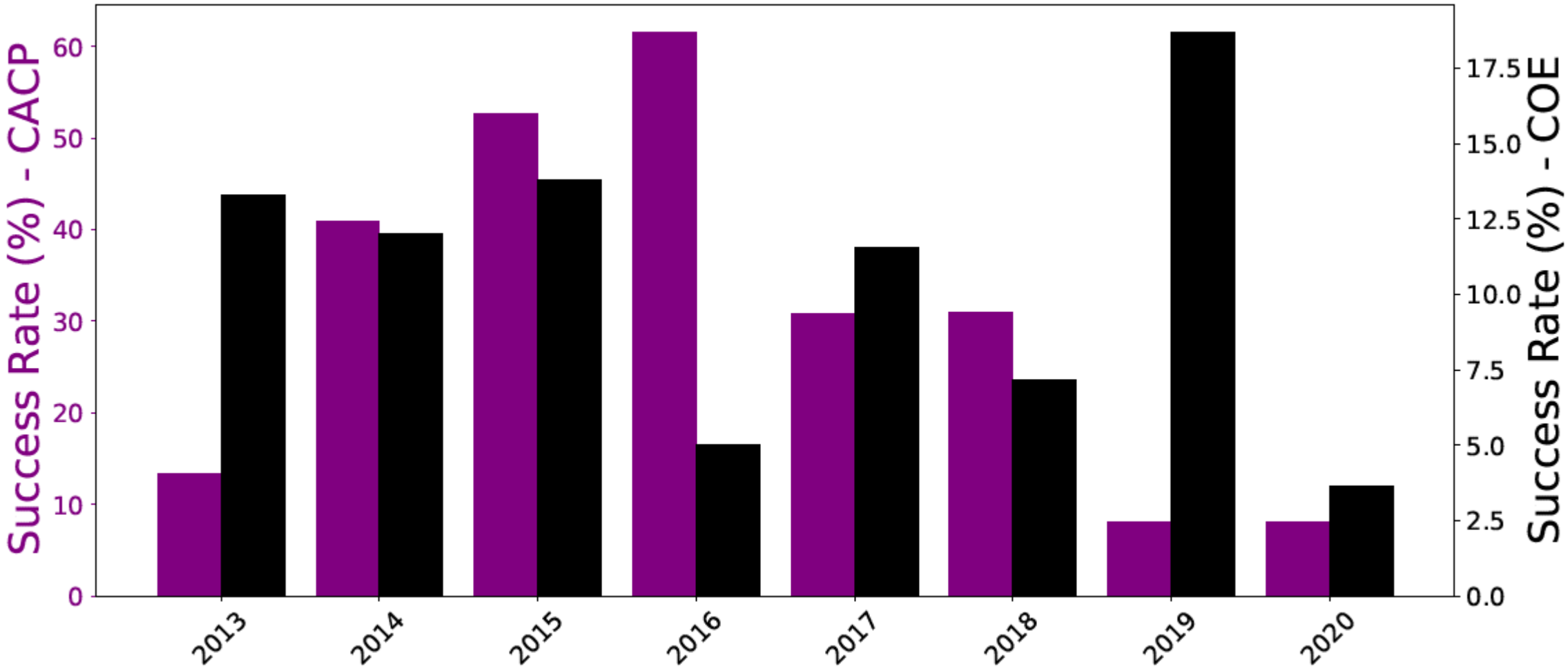
Future Award Projections: Trend + Seasonality



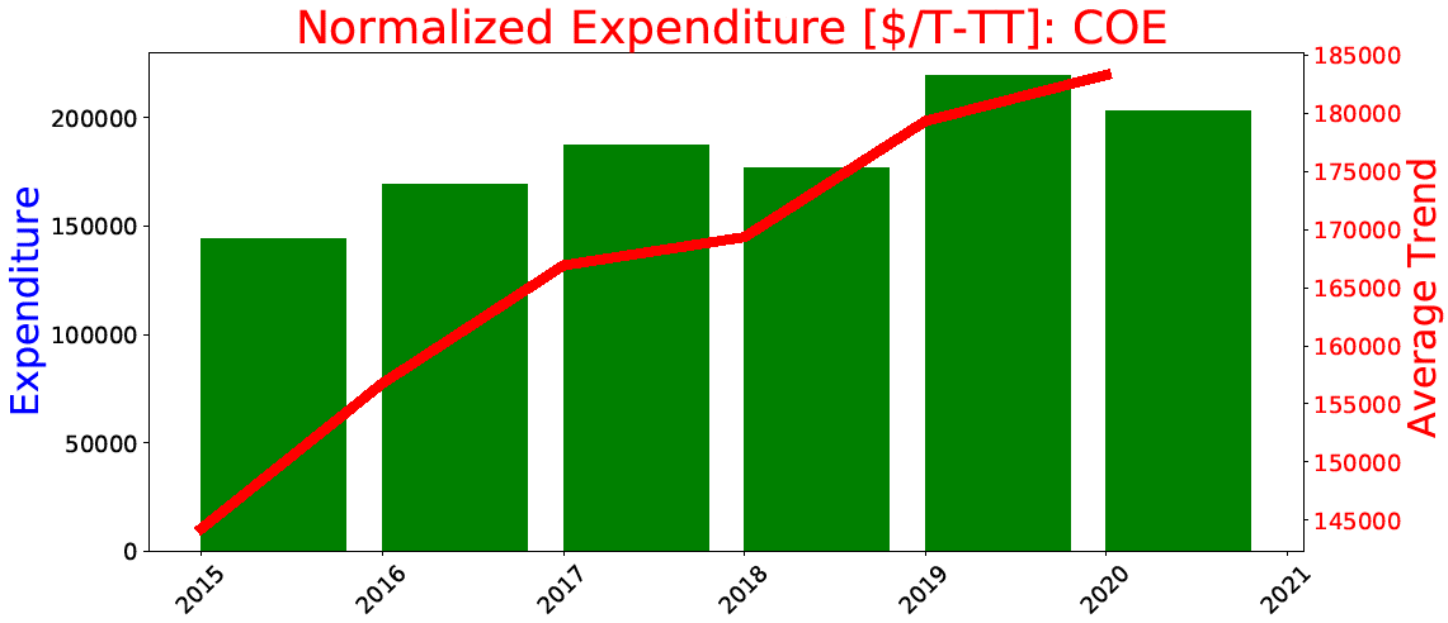


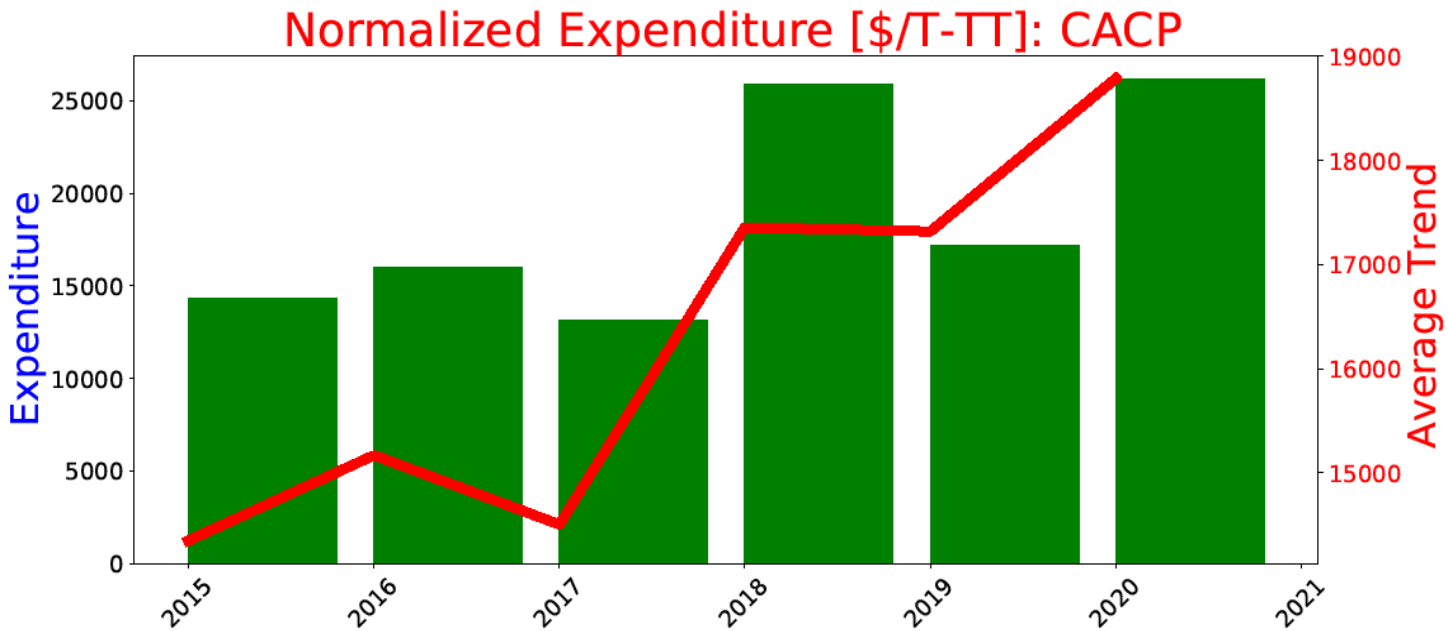
Model details:
Trend: Linear Regression that produced an R^2 of 0.95 on unseen testing data.
Seasonality: Random Forest that produced an R^2 of 1 on unseen testing data.
Residuals: Not predictable from the data that we have. One solution may be to utilize the median of the residuals for future predictions.

Research Proposal vs. Awards Success Rate Analysis



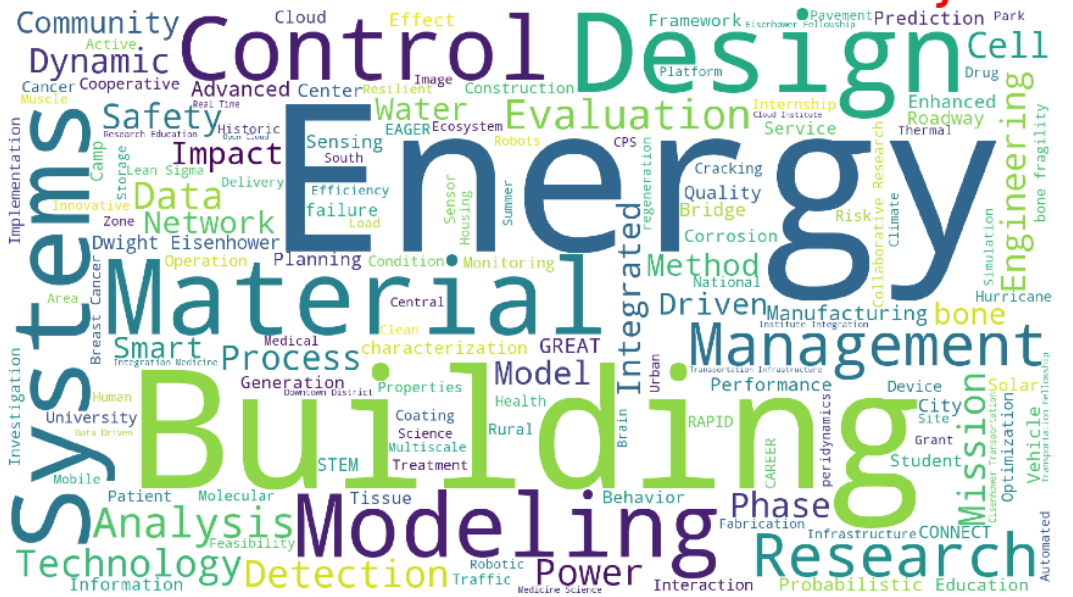
Research Expenditure Analysis



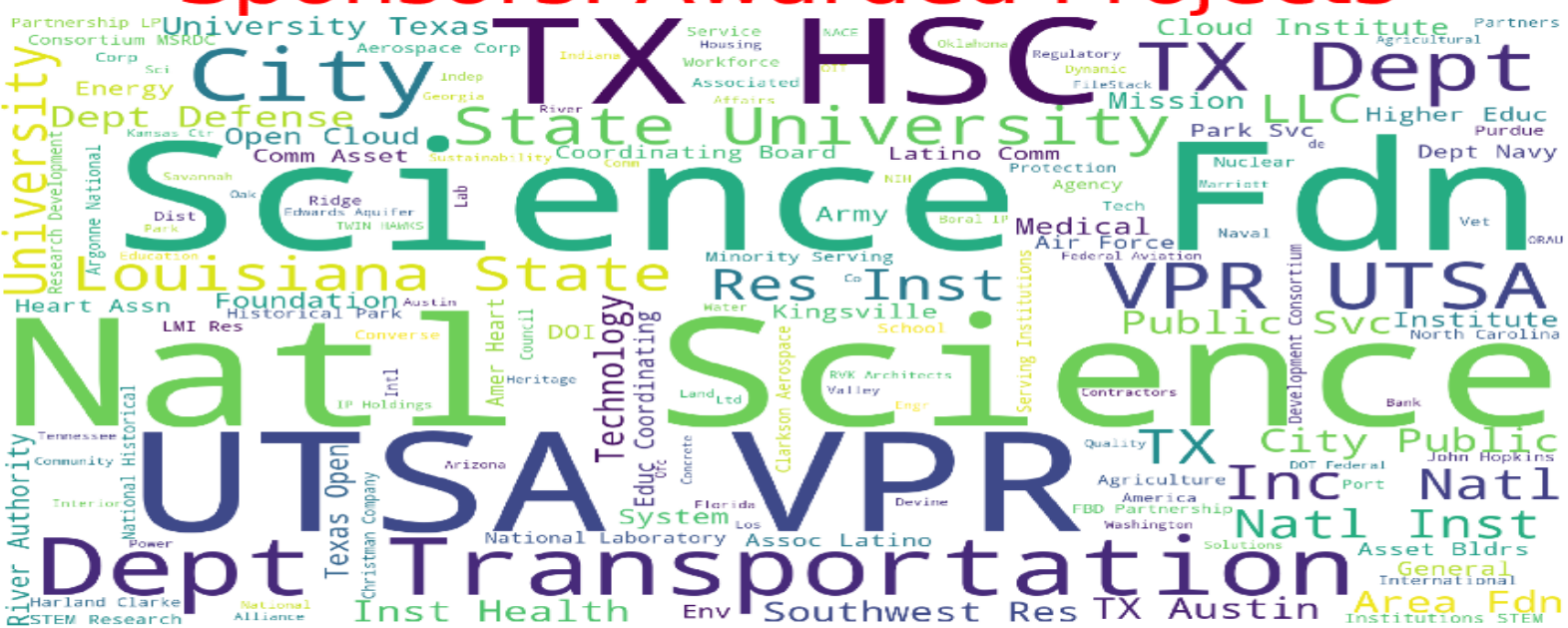


Areas of Research: Proposals

Areas of Research: Awarded Projects



Sponsors: Awarded Projects



Conclusions

- What have we learned that can be brought into the next phase?
  - Culture of each department / domain
  - Opportunity to explore synergies is supported by both faculty and students
  - Opportunities to engage our students across domains can increase their potential and further connects our programs to industries
- How does this influence possible notional models?
  - Provides identifiable areas of potential to justify synergies between domains
  - Helps us to prioritize those synergies

Rendering from the project..Image © Beatriz Santos

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Community Engagement Subcommittee

Integrated Design Initiative Phase 1 Report

Community Engagement Subcommittee

- Taylor Adkins
- Saadet Beeson
- Roger Enriquez
- Albert Han
- Dhireesha Kudithipudi
- Elvira Leal
- John Murphy
- Neda Norouzi
- Humberto Saenz
- Fidel Santamaria

Subcommittee Liaisons

- Debaditya Chakraborty
- Sedef Doganer

Task Force Administrators

- JoAnn Browning
- Shannon Heuberger
- Debbie (Howard) Rappaport

Integrated Design Initiative

Community Engagement Subcommittee

PHASE 1

UTSA CACP Charrette

- Questions Asked
  1. What is the community needs/interest on: (A) Degree Programs, (B) Professional Development
  2. What is the community research needs/interest and partnership opportunities
  3. What can the faculty/staff/students do to help the community?
  4. What faculty/staff/students engagement in teaching, research, and service is most impactful to the community?

- Data: Text data from notes (15,352 words)
- Methods: Topic Modeling for pattern recognition

  Review by the subcommittee members

Question 1.

What is the community needs/interest on: (A) Degree Programs, (B) Professional Development?

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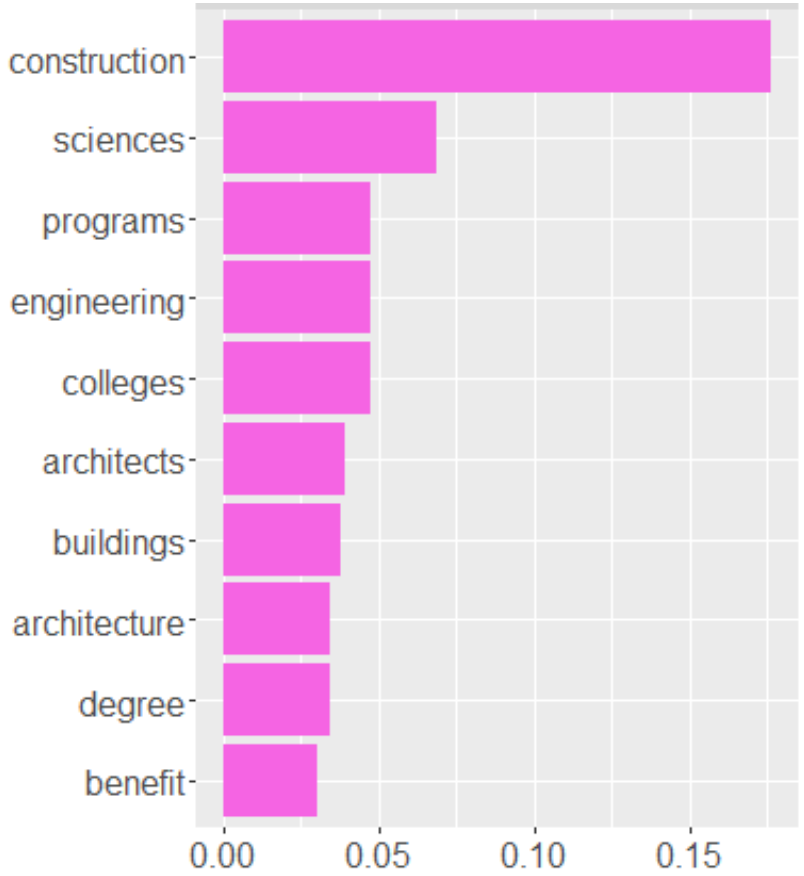
(A) Degree Programs, (B) Professional Development



Regards to Architecture + Construction Science + Engineering

“Likes the combination of architecture and construction science. Students will have the whole picture, solve problems onsite.”

“Give students a glimpse into the real world of how we really work - benefit of combined with engineering - likes the holistic view and benefit of architects as having the advantage of knowing engineers - build teams inside the college and they will be ready with doing collaborative work”

“Power of engineering and engineers are that they are problem solvers. Architect’s power is ability to think in a non-linear way.”

Question 2.

What is the community research needs/interest and partnership opportunities?

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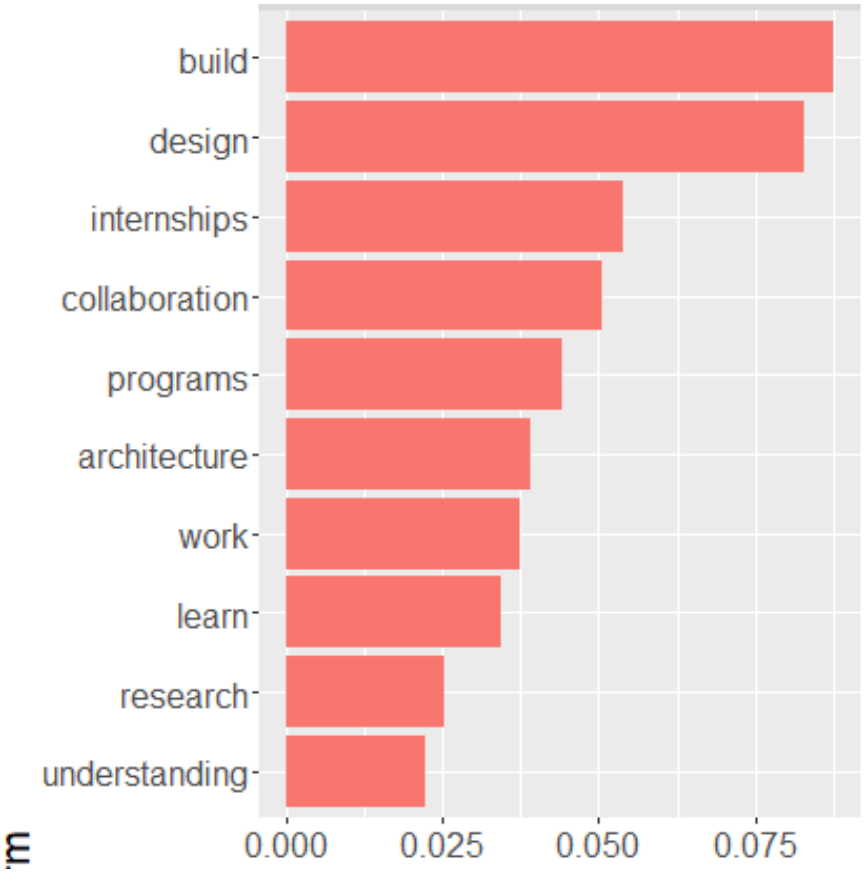


Regards to Internships

"Internship requirement for engineering and architecture degrees. All need to learn what is expected at work. **Bring architecture programs to have the same internship experiences as engineers**.

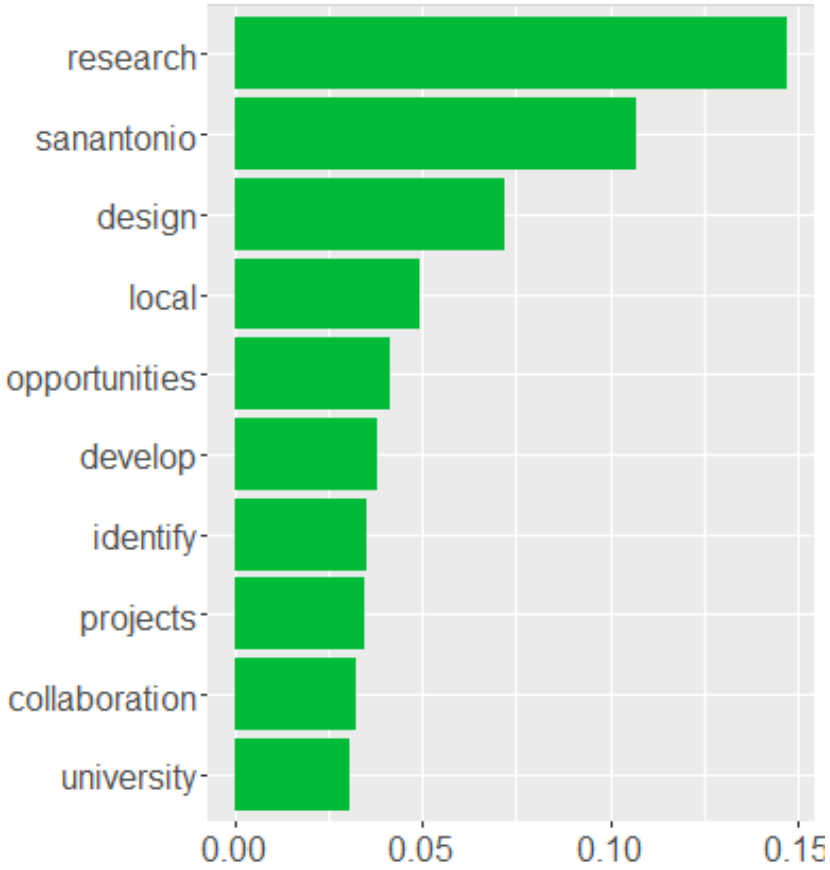
"Create a **partnership opportunity with internships which is a win-win for industry, students, and community**"

"More internships and partnership in studio work is helpful."

"Real hands-on experience and internship."

"Most of the attendees need more interns – not enough coming out of UTSA; ads have gone out to the students but not a lot of response

Question 2. What is the community research needs/interest and partnership opportunities?



Regards to Research

"**Design build projects** and opportunities within academic research to **collaborate with different organizations nationally** to bring outside expertise into San Antonio/"

"Want San Antonio to stand out with top notch research facilities that would **establish San Antonio as a research hub**."

"Collaboration for a richer research program that helps prioritize local issues"

"Community outreach efforts -- **research impacts technology as well as important social issues.**"

"San Antonio is unique and having **local knowledge** is valuable for research"

Question 3.

What can the faculty/staff/students do to help the community?

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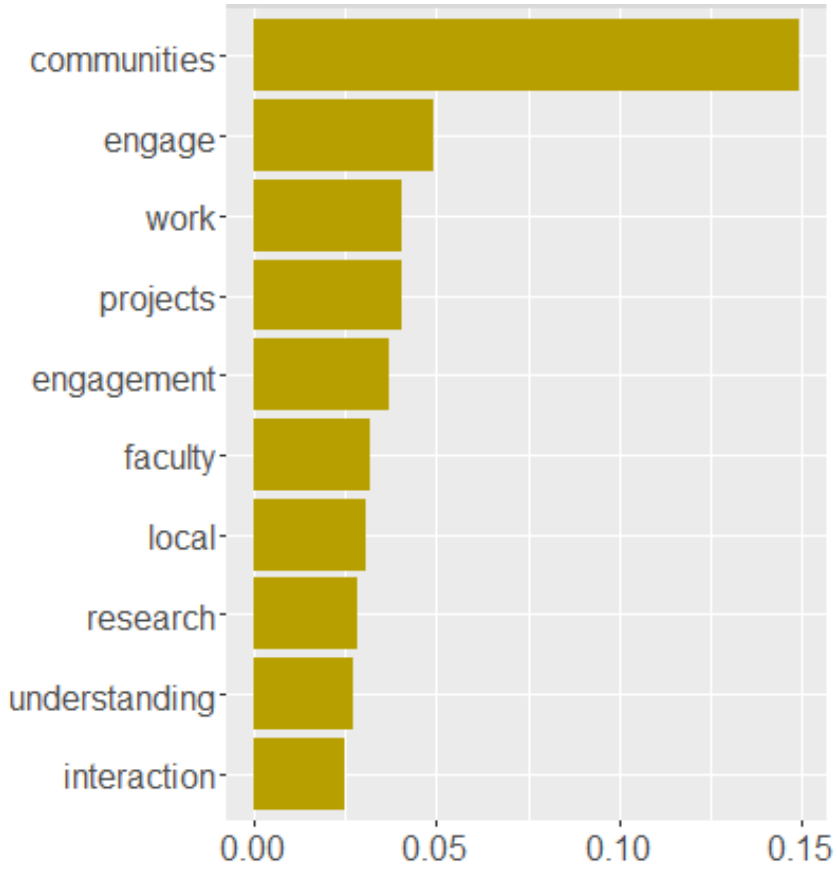


Regards to Community and Engagement

"**Do community engagement research** - dive into micro history of communities - sensitivity to communities past traumas – especially in communities of color - demolition and gentrification can be traumatic"

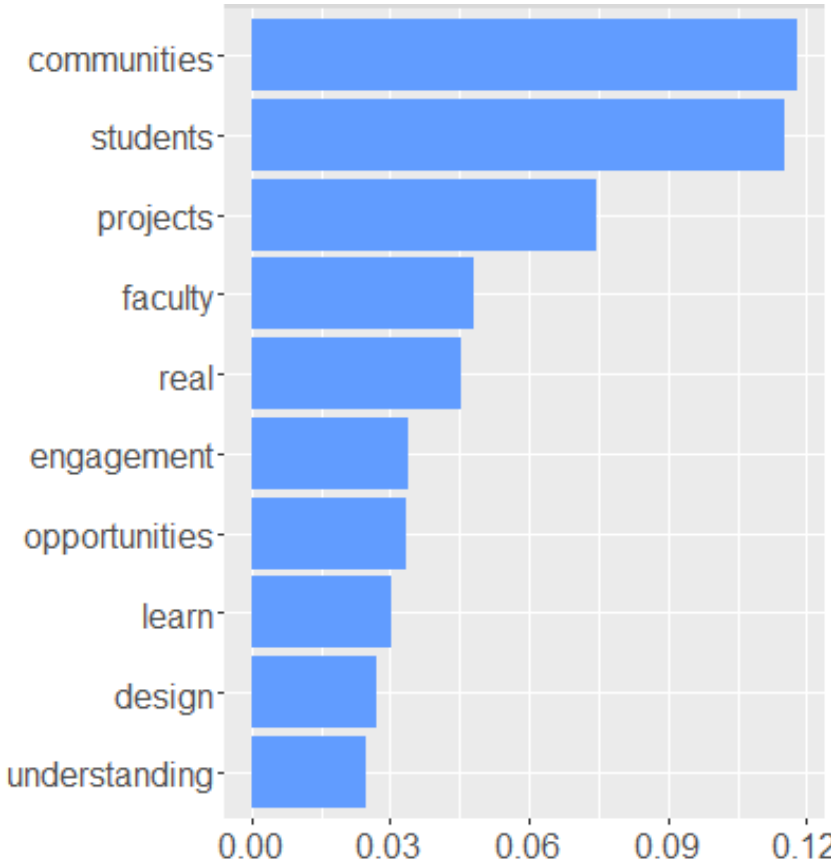
"The communities that need the most engagement are the ones that…lack the infrastructure. **Infrastructure plays a critical role in engagement**"

"**Go out to communities and engage them by using research expertise**"

"Community engagement can create a stronger link to the community… **Create loyalty to the community**"

"**Engage professional community** to bring their technology into classrooms"

Question 3. What can the faculty/staff/students do to help the community?



Regards to Students

"Are students trained to conduct **community input sessions**? A good skill would be able to do community engagement research"

"Preparing students for modern workforce… designers and architects' **understanding of local values** - projects belong to community"

"Keep **a line of communication** open between UTSA Students/communities"

"Different communities mean different issues/concerns; make sure students understand that; have students go out and have events out in the community"

"Faculty need to educate students in such a way that the students are aware of how efficiently they can serve the community"

Question 4.

What faculty/staff/students engagement in teaching, research and service is (or could be) most impactful to the community?

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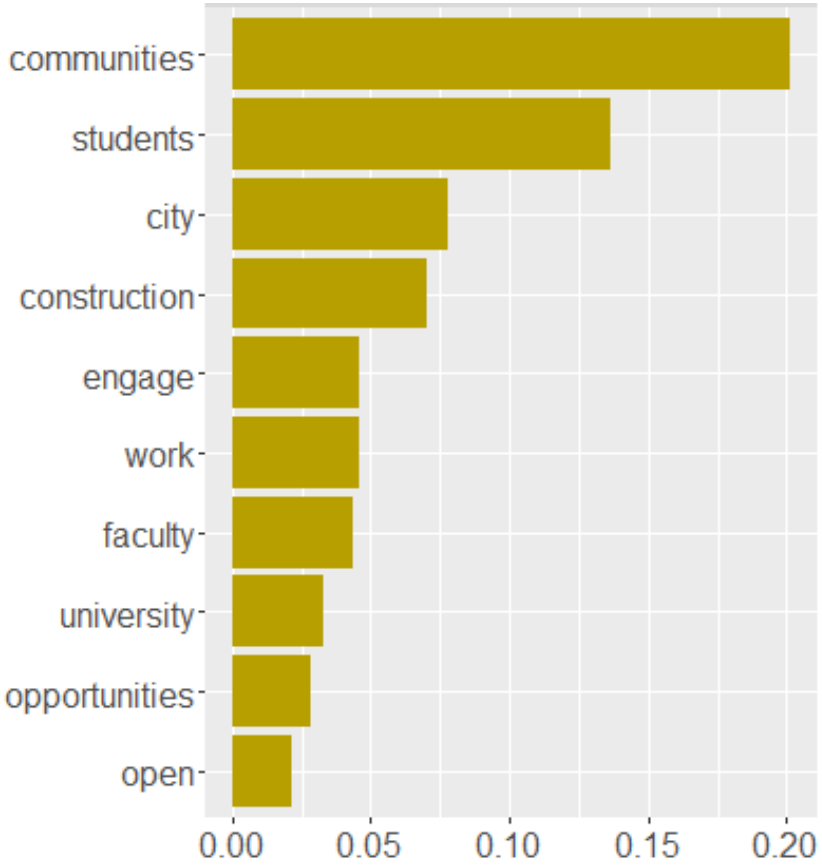


Regards to Communities

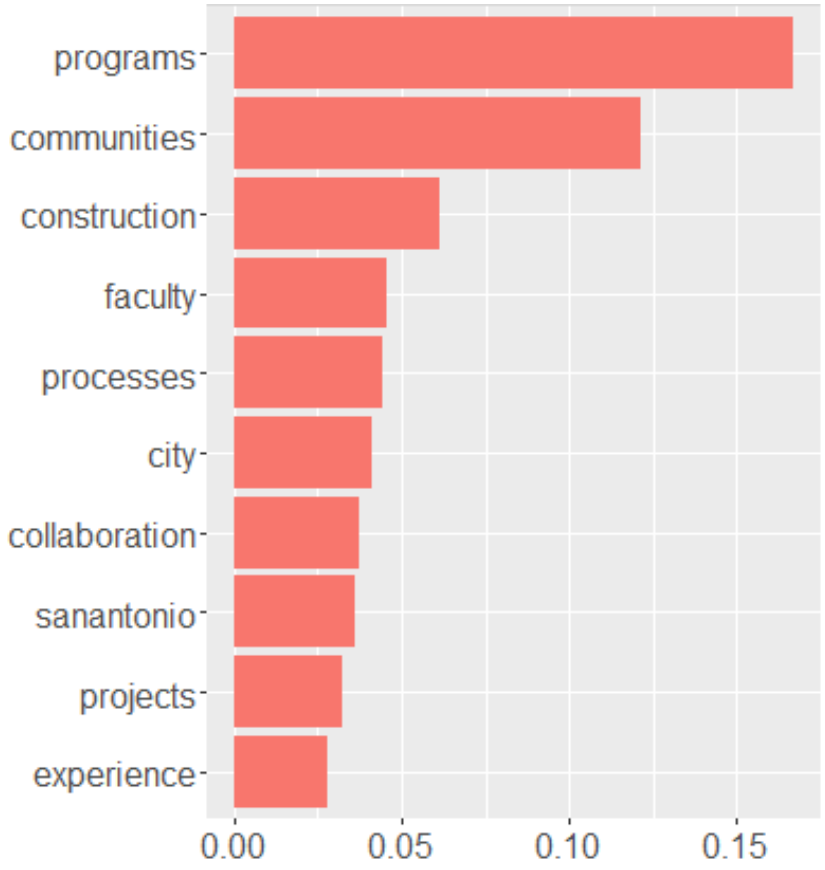
"Already connecting with community, like SAISD, but this needs to be increased; **we are building our communities, impacting where we live and work**"

"**Students collaborating with faculty to help communities with constructing small projects**"

"Focus where the need is more. **Engage with communities that have been historically marginalized**"

"**Real engagement happens when the university opens its doors to the community** and shares the knowledge they have."

Question 4. What faculty/staff/students engagement in teaching, research and service is most impactful to the community?



Regards to Programs

"**Interdisciplinary programs to solve real problems** – with city of San Antonio as the client – would be great way for academia to have direct contribution to improving quality of life in the community"

"**Formalize the linkage between prep programs,** UTSA programs, etc. will attract more students if they could see the tract or link."

"**Being able to communicate what the program is doing and how the program is beneficial.** Market the profession and what we are doing and what we can do to help the community."

KEY TAKEAWAYS FROM THE CHARRETTE

- Work with and for the San Antonio communities, especially who are disenfranchised and marginalized.
- Enhance communications among faculty, students, communities, and public/private sectors
- Promote interdisciplinary collaboration/partnership to enhance research and teaching
- Provide real-world, hands-on learning experience to students by partnering with industries and communities (studios, study-work program, internships)

Community Engagement Subcommittee Online Survey

UTSA
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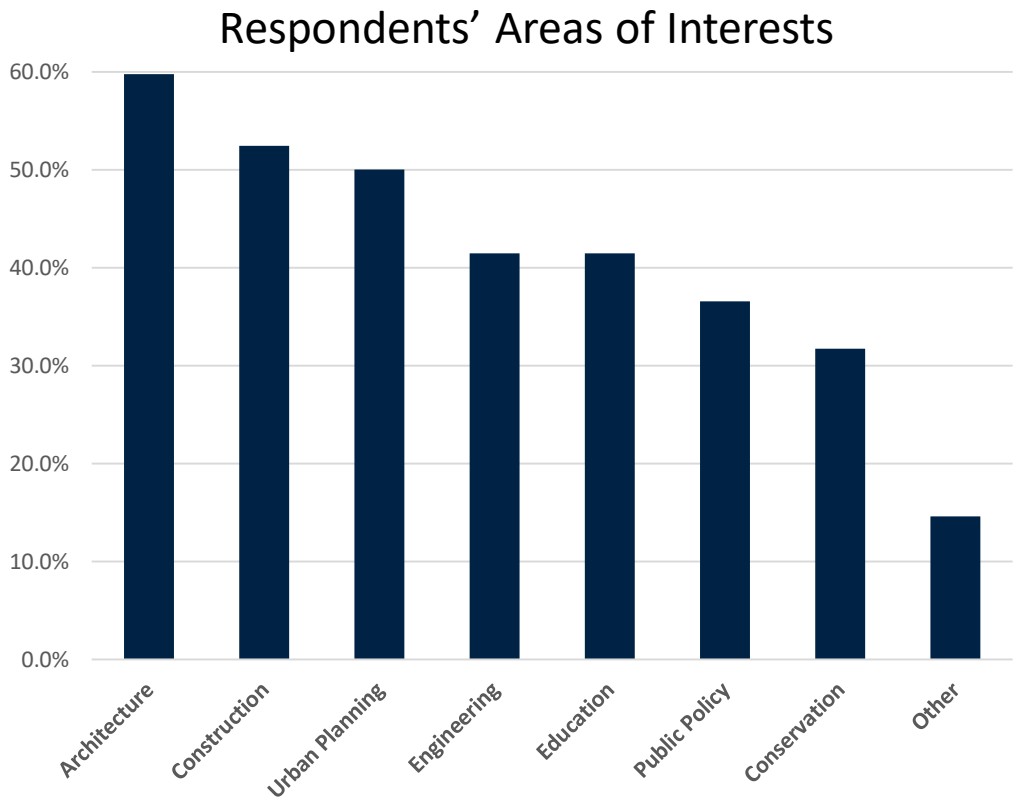
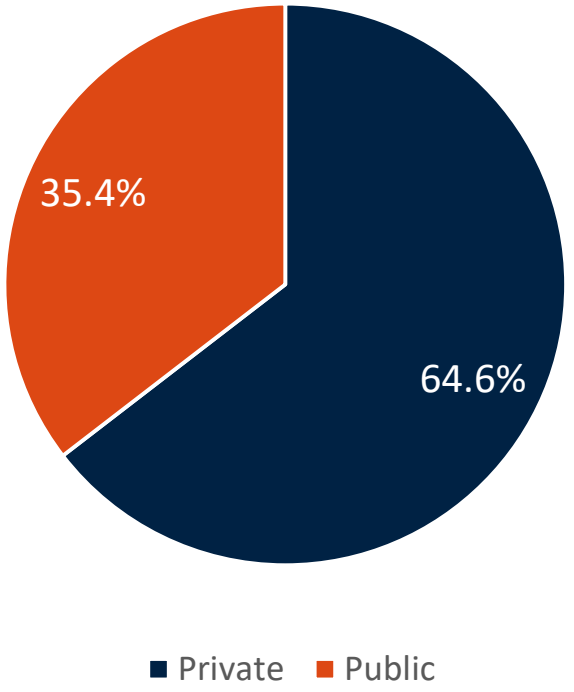
Thank you for your interest in our new college (read more about our initiative here), which will live at the intersection of architecture, construction, planning and engineering. Our work is just beginning and we still need input on how we can best serve our city and region. Can you please provide your opinion to help us forge our new vision for the future? If so, click the button in lower right hand corner to start the survey, thank you.

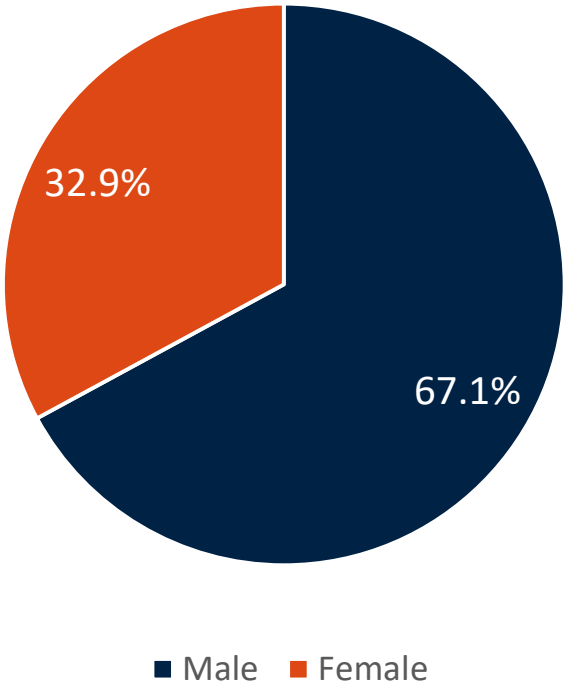
→

As of 12:00 PM, July 8th, 2020
82 responses, 41 responses in progress

Survey Respondents







24.1% of the respondents (19) were affiliated with UTSA
(Alumni (10), Advisory Board (14), Faculty (2), Administrator (1))

CORE QUESTION 1:

How important is it for the new college to help local industries to develop innovative materials, processes or structures that improve the lives of people?

Choice	Count	Percent
Extremely Important	41	51.2%
Very Important	26	32.5%
Moderately Important	11	13.8%
Slightly Important	2	2.5%

▪ **Fostering partnerships with private and public sectors** to enhance teaching, research and employment opportunities with a focus on the local community.	58.5%
▪ **Incorporating data analytics and other emerging technologies to enhance public understanding and find solutions** to grand challenges in the fields of architecture, construction, planning and engineering.	42.7%
▪ **Designing secure and environmentally friendly systems** (e.g., construction, energy, water and materials) that are friendlier to our planet.	36.6%
▪ Focusing on research that can be **transitioned to commercial or non-profit organizations or to communities for actual deployment in the real world**	29.3%
▪ Other (please describe)	6.1%

CORE QUESTION 2:

How important is it for the new college to undertake research that takes into account the needs of the community?

Choice	Count	Percent
Extremely Important	42	51.9%
Very Important	29	35.8%
Moderately Important	8	9.9%
Slightly Important	2	2.5%

• Transforming technology and processes that promote sustainable consumption of resources, by planning, designing, building and maintaining climate-resilient structures, and enhanced energy efficient buildings	53.7%
• Promoting compact development that allows for aging in place to mitigate sprawl while preserving community's culture and addressing housing affordability.	41.5%
• Working in a interdisciplinary manner motivated by discovery and helping society to mitigate inequalities in the fields of architecture, construction, planning and engineering.	39.0%
• Innovating with emerging technologies like artificial intelligence, self-driving vehicles, and smart grids to spur economic development and improve quality of life.	37.8%
• Other (please describe)	7.3%

CORE QUESTION 3:

How important is it for the new college to help students develop "marketable-skills" like work ethic, leadership and communication skills?

Choice	Count	Percent
Extremely Important	64	79.0%
Very Important	13	16.0%
Moderately Important	4	4.9%
Slightly Important		

• Developing project leadership skills for **project management, strategic decision-making, and team building**.	65.9%
• Fostering in students the ability to **express ideas and articulate their rationale when communicating** concepts in architecture, construction, planning and engineering using visual media and in written communication.	57.3%
• Exposing students to common **ethical issues regarding financial, business, management and relationship decisions** in architecture, construction, planning and engineering.	48.8%
• Inculcating in students an appreciation of **cultural diversity and social equity** in the workplace and beyond.	20.7%
• Other (please describe)	3.7%

CORE QUESTION 4:

How important is it for the new college to help students develop "technical-skills" like software training and certificates?

Choice	Count	Percent
Extremely Important	28	34.6%
Very Important	31	38.3%
Moderately Important	17	21.0%
Slightly Important	4	4.9%
Not at all Important	1	1.2%

• Offer training on **collecting, analyzing, and visualizing data using virtual and augmented reality** in architecture, construction, planning and engineering applications.	52.4%
• Incorporate **geographic information systems** software training across various applications.	39.0%
• Provide training for students **on industry specific software packages** (please describe)	34.1%
• Offer **discipline specific cutting-edge certificates** and micro-masters to students (please describe)	14.6%
• Other (please describe)	6.1%

CORE QUESTION 5:

Is it important for the new college to be engaged in experiential learning programs that provide opportunities to get real-world experience?

Choice	Count	Percent
Extremely Important	42	51.9%
Very Important	34	42.0%
Moderately Important	5	6.2%
Slightly Important		

• **Partner with local firms** to work on actual projects in class while utilizing a workshop style format.	61.0%
• Establish **mentoring and/or shadowing opportunities** where students can acquire first-hand experience of the profession.	52.4%
• Create **co-op opportunities** where students can apply academic training, test skills and get a head start on a career.	51.2%
• Offer opportunities to take **field trips and site visits** of relevance to architecture, construction, planning and engineering disciplines.	28.0%
• Other (please describe)	3.7%

CONCLUSION

- **CACP Charrette**: Important areas of innovation in research and teaching
  - Foster community-engaged, interdisciplinary research
  - Enhance partnership with industry partners and public sector
  - Train students with important marketable and technical skills
- **Preliminary Survey Results:** Concrete Solutions
  - Research
    - Fostering partnership with private and public sectors
    - Data analytics/technologies to enhance public understanding and find solutions
    - Designing secure, sustainable environmental systems
    - Research with real-world application and implications
  - Teaching
    - More emphasis on marketable skills (e.g., communication, management, advocacy)
    - Technical Skills (e.g., data analytics, visualization, technical certificates)

NEXT STEP

- Complete the analysis of the survey results (survey to be closed next week)
  - Rich inputs from the open-ended responses
- Expand the scope of community engagement to national and international communities
  - Research and teaching beyond local communities (e.g., study abroad programs)
- Identify and address the missing pieces from Phase 1 by coordinating with other subcommittees

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The University of Texas at San Antonio™

Integrated Design Initiative Task Force

Benchmarking Subcommittee Update
July 9, 2020

Benchmarking Subcommittee Members

Ibukun Awolusi
Janis Bush
Ian Caine
Sedef Doganer
Curtis Fish
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Rebecca Weston

Subcommittee Liaisons

Albert Han
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JoAnn Browning
Shannon Heuberger
Debbie (Howard) Rappaport

Transdisciplinary Models: Research + Teaching + Learning

College Models

Institute Models

Transdisciplinary Models: Research + Teaching + Learning

College Models

Institute Models

Less common at scale of the College.

More common outside of U.S.

More common at scale of the Institute.

Here are twelve models at the scale of the College and Institute…

College Models

Ohio State University

McGill University

Washington State University

University of Strathclyde Glasgow (UK)

University College London (UK)

TU Darmstadt (Germany)

Ohio State University

University Profile

68,262 Students
250+ Bachelor, 171 Master's, and 113 Doctoral
33 or 40 National Academy Members
Five Grand Challenges: Energy & Environment, Health, Security, and Learning & Computation
$929.2 Million in Research and Development Expenditures
$497.6 Million: Federal R&D expenditures
$157.8 Million: Industry-sponsored research expenditures
2,423 Study Abroad Programs

College of Engineering Profile

1 campus
15 major programs
$49 Million Industry R&D expenditures
7,931 Undergraduate, 1812 Graduate Students Enrolled
Degrees Conferred - 1715 Undergraduate, 633 Graduate

Ohio State University | College of Engineering

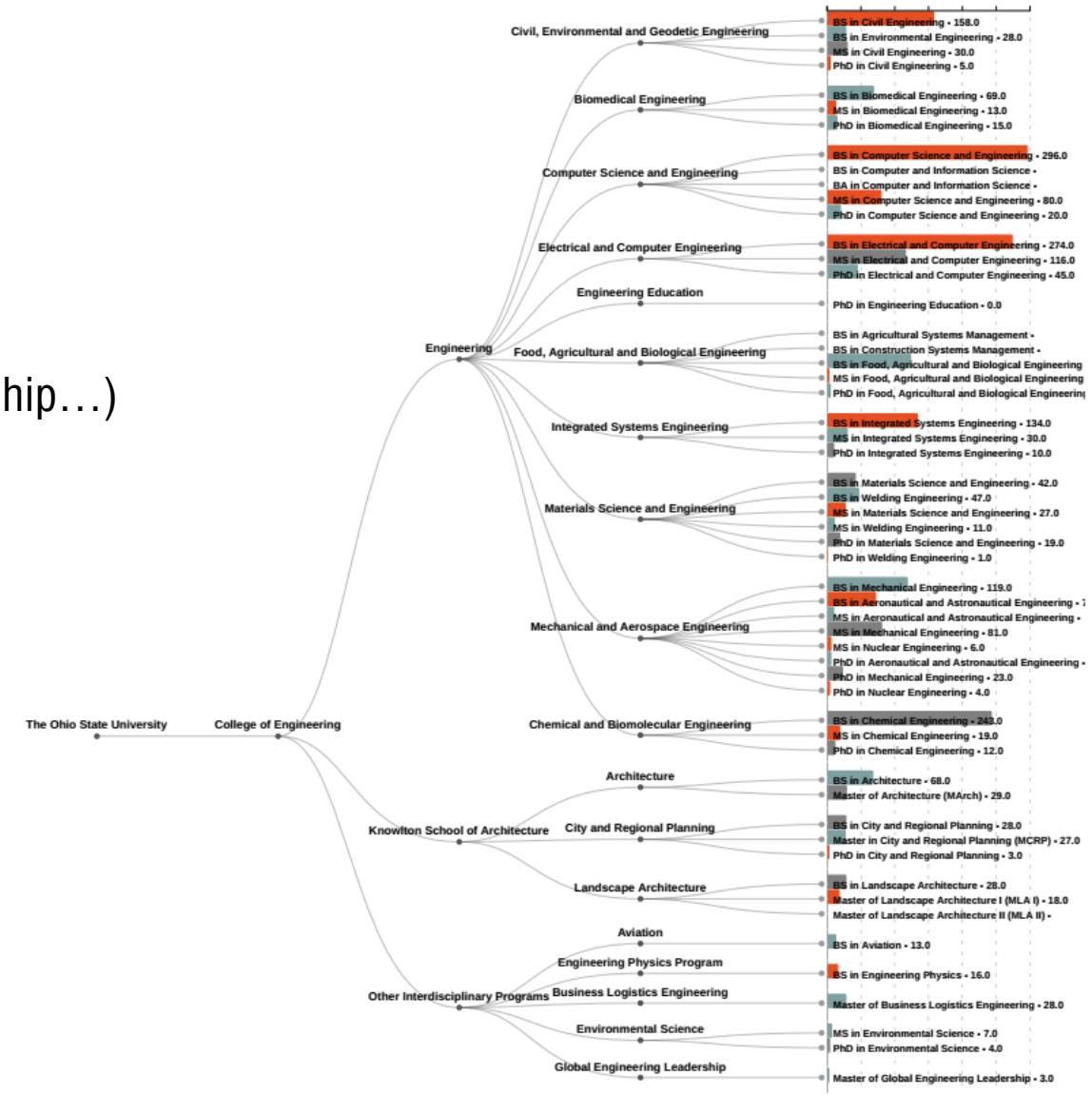
	T/TT	Emeritus	NTT/Adjunct	Staff
Biomedical Engineering	23	4	6	25
Civil, Environmental and Geodetic Engineering	29	16	21	20
Computer Science and Engineering	50	10	60	20
Electrical and Computer Engineering	65	19	16	17
Engineering Education	7	0	31	8
Food, Agricultural, and Biological Engineering	27	17	23	31
Integrated Systems Engineering	26	4	15	32
Knowlton School of Architecture	46	23	37	18

Ohio State University | College of Engineering | Degrees Conferred

Engineering

Knowlton School of Architecture

Interdisciplinary Programs (Business, Environment, Global Leadership…)



McGill University

University Profile

40,153 Students
Royal Society of Canada: 195
Grand Challenges:
$566.6 Million in Total Research and Development Expenditures
$295.9 Million in Federal Research and Development Expenditures
$44 Million in Industry-sponsored
$920.0 Million in Revenue – Unrestricted Fund
$928.7 Million Expenses and inter-fund transfers – Unrestricted Fund

Faculty of Engineering Profile

1 campus
10 major programs
3,392 Undergraduate, 1,103 Graduate Students Enrolled

McGill University | Faculty of Engineering Profile

	T/TT	Emeritus	NTT/Adjunct	Staff
Bioengineering	9	0	9	5
Chemical Engineering	18	4	0	14
Civil Engineering & Applied Mechanics	21	2	0	12
Electrical & Computer Engineering	46	9	17	19
Mechanical Engineering	29	6	9	7
Mining & Materials Engineering	23	4	16	15
School of Urban Planning	5	3	6	2
The Peter Guo-hua Fu School of Architecture	17	4	23	7

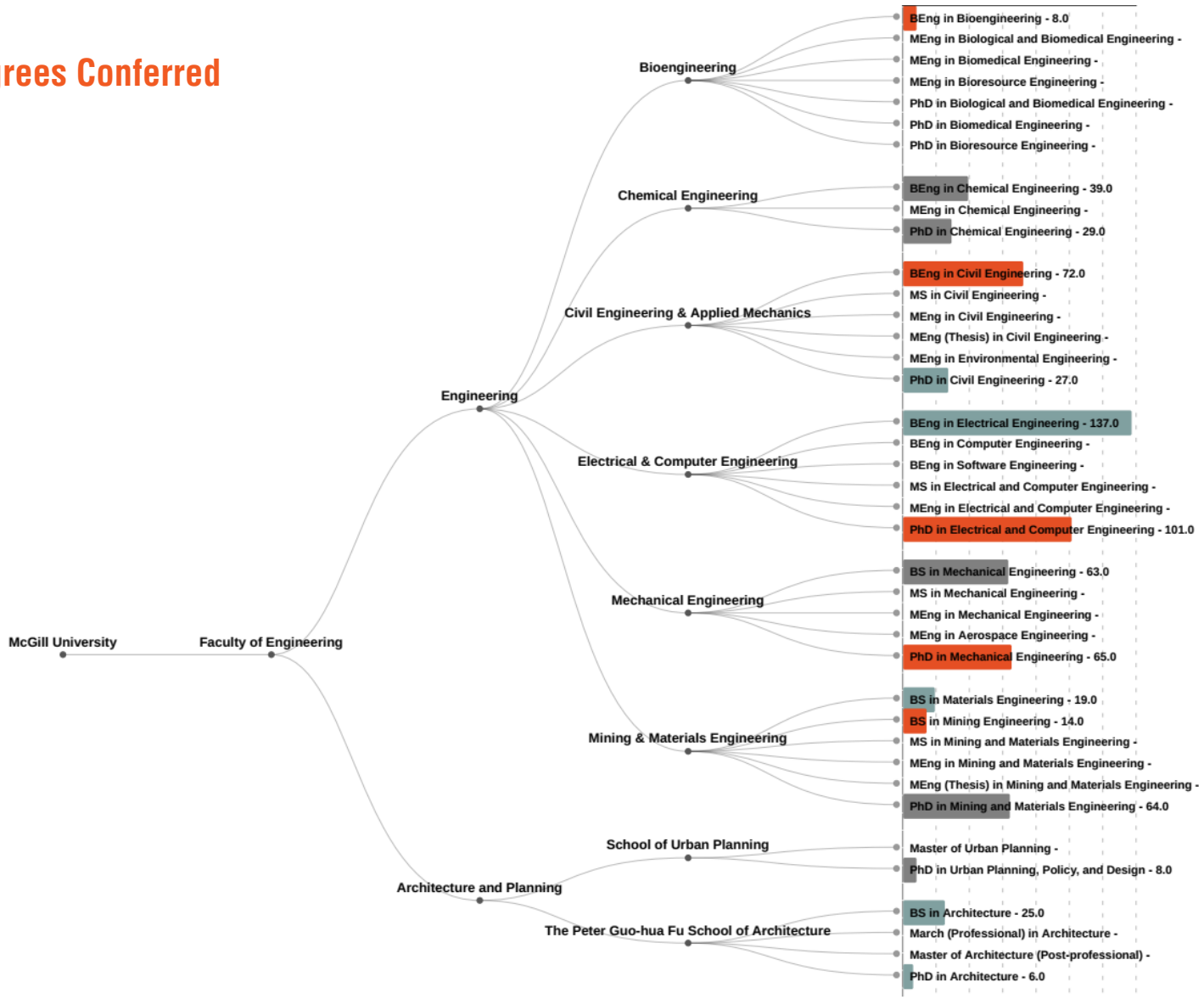
McGill University | Faculty of Engineering | Degrees Conferred

Engineering

School of Urban Planning

Peter Guo-hua Fu School of Architecture

Different Budgeting System



Washington State University

University Profile

20,976 Students
98 Bachelor, 78 Master's, and 65 Doctoral
11 National Academy Members
Five Grand Challenges: Sustaining Health, Sustainable Resources, Opportunity and Equity, Smart Systems, National Security
$360.5 Million in Total Research and Development Expenditures
$151.1 Million in Federal Research and Development Expenditures
500+ Study Abroad Programs
6-year Graduation Rate (2013 cohort): 60.2%
Retention Rate: 79.0%

Voiland College of Architecture & Engineering Profile

6 campuses
29 fields of study
$20M Donated
$33M in Research Expenditures
6,000 Students Enrolled
Degrees Conferred - 946 Undergraduate, 197 Graduate

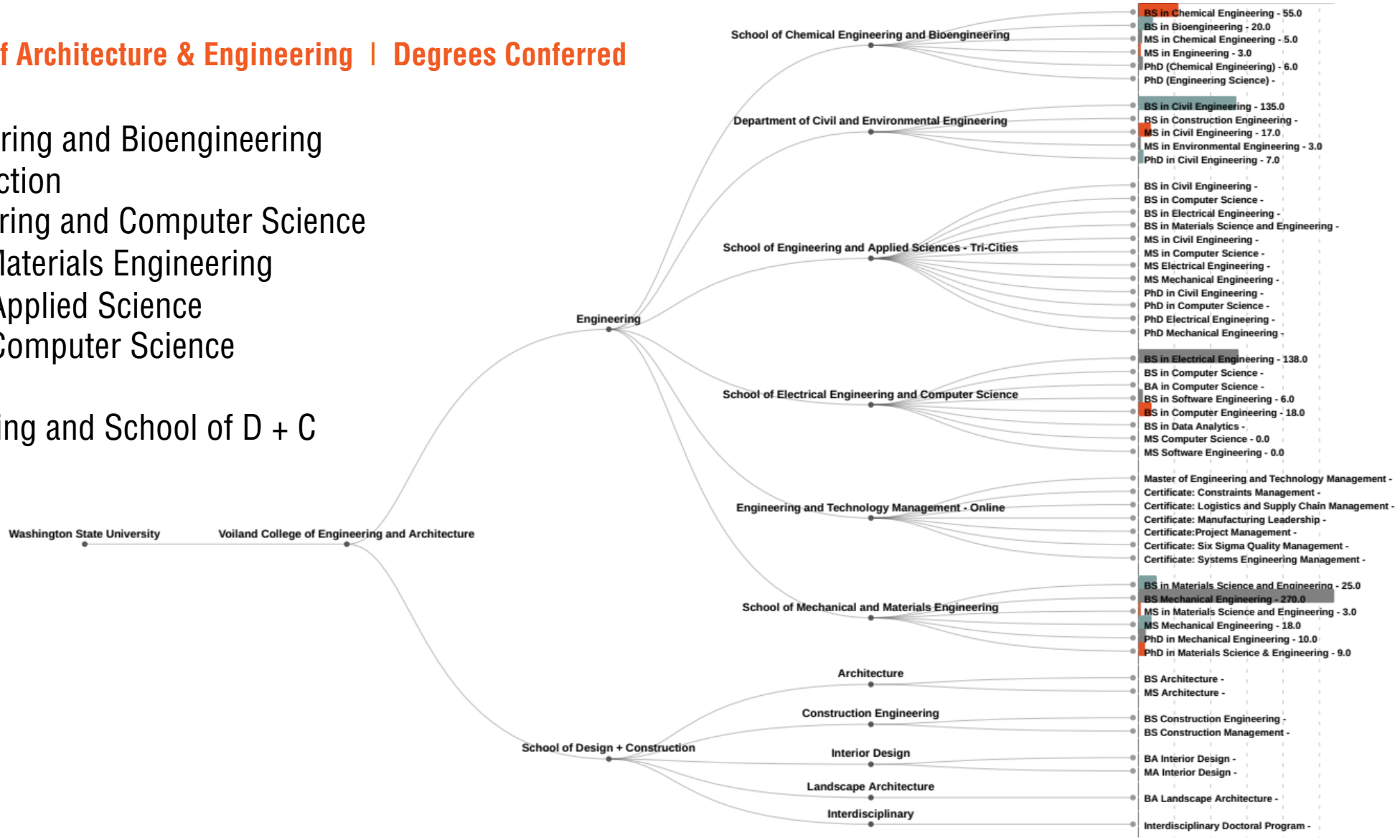
Washington State | College of Architecture & Engineering

	T/TT	Emeritus	NTT/Adjunct	Staff
School of Chemical Engineering and Bioengineering	21	7	10	8
Department of Civil and Environmental Engineering	43	6		9
School and Design + Construction	25	1	8	6
School of Electrical Engineering & Computer Science	42	3	1	15
Engineering and Technology Management - Online	5	2	3	2
School of Mechanical and Materials Engineering	40	0	3	2
School of Engineering & Applied Sciences - Tri-Cities				2
Civil Engineering (Program)	2			
Computer Science	1		2	
Electrical Engineering	3			
Mechanical Engineering	3		2	
School of Engineering & Computer Science - Vancouver	21	0	0	8

Washington State | College of Architecture & Engineering | Degrees Conferred

School of Chemical Engineering and Bioengineering
School of Design + Construction
School of Electrical Engineering and Computer Science
School of Mechanical and Materials Engineering
School of Engineering and Applied Science
School of Engineering and Computer Science

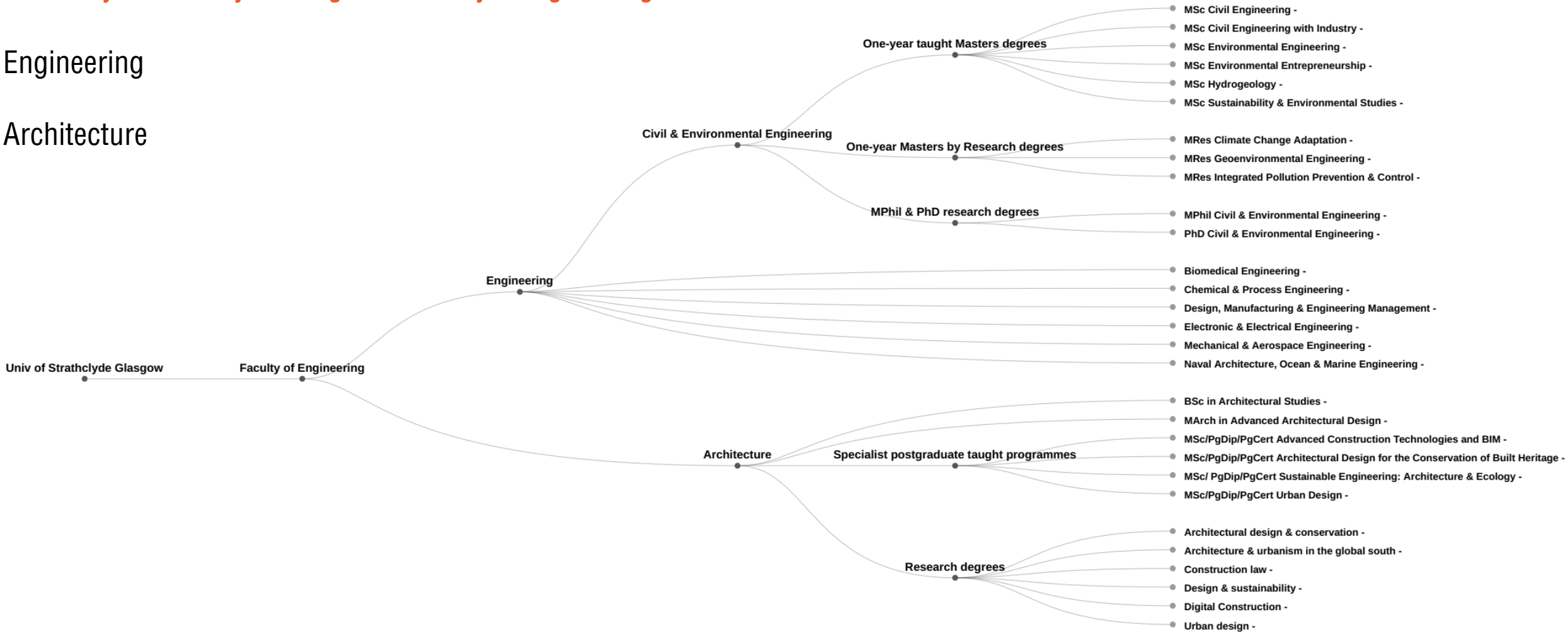
Joint Degree Civil Engineering and School of D + C



University of Strathclyde Glasgow | Faculty of Engineering

Engineering

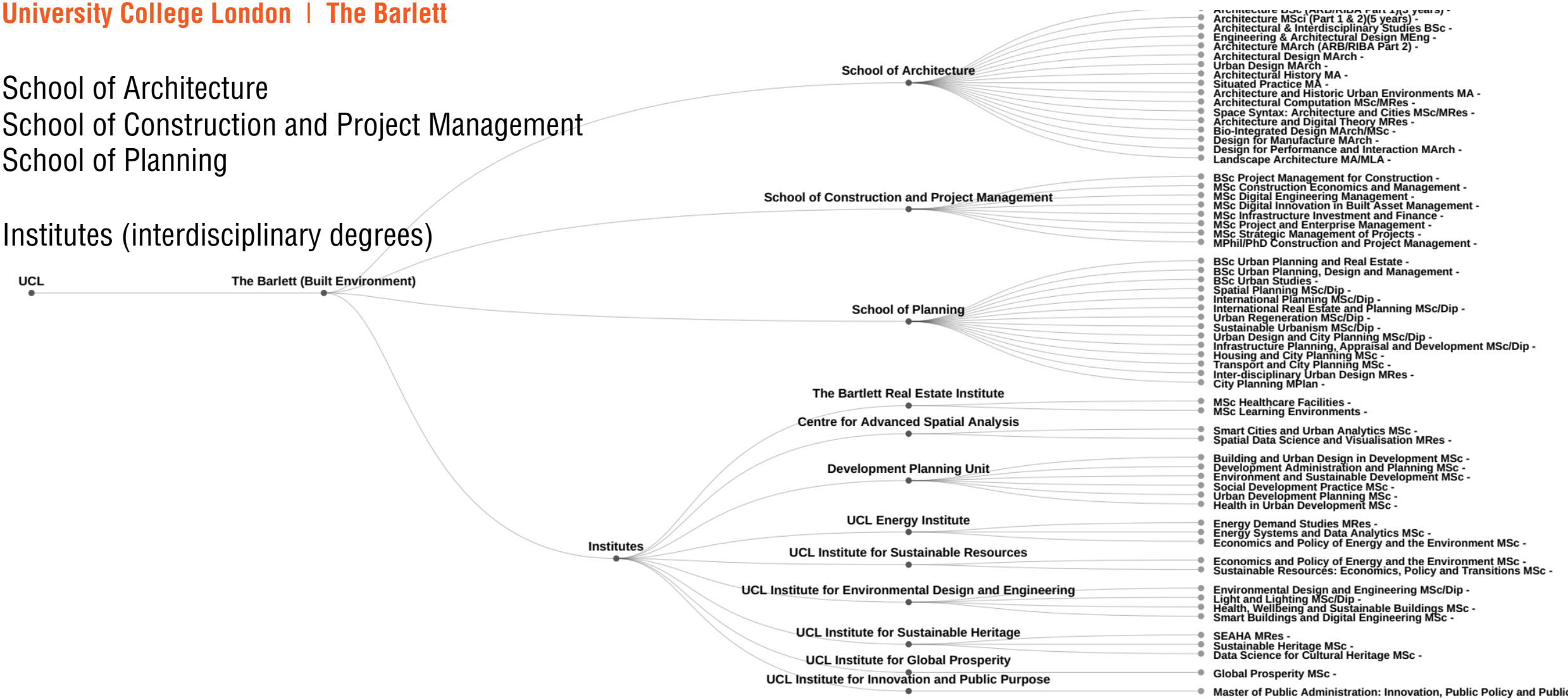
Architecture



University College London | The Barlett

School of Architecture
School of Construction and Project Management
School of Planning

Institutes (interdisciplinary degrees)

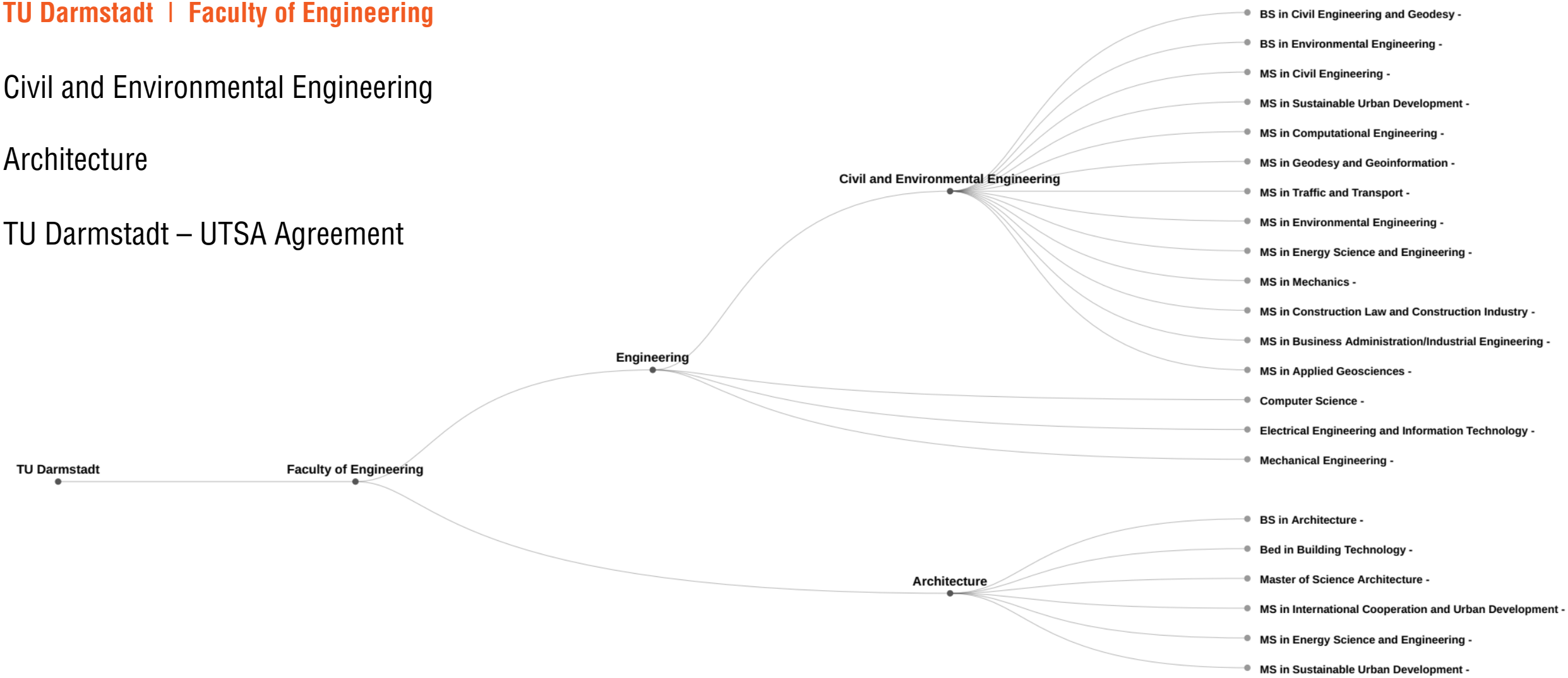


TU Darmstadt | Faculty of Engineering

Civil and Environmental Engineering

Architecture

TU Darmstadt – UTSA Agreement



Transdisciplinary Research Models

Sustainability + Environment

Resilience + Infrastructure

Urbanism + Urban Science

Construction + Material Science

Community Design + Outreach

Energy + Environment

Sustainability + Environment

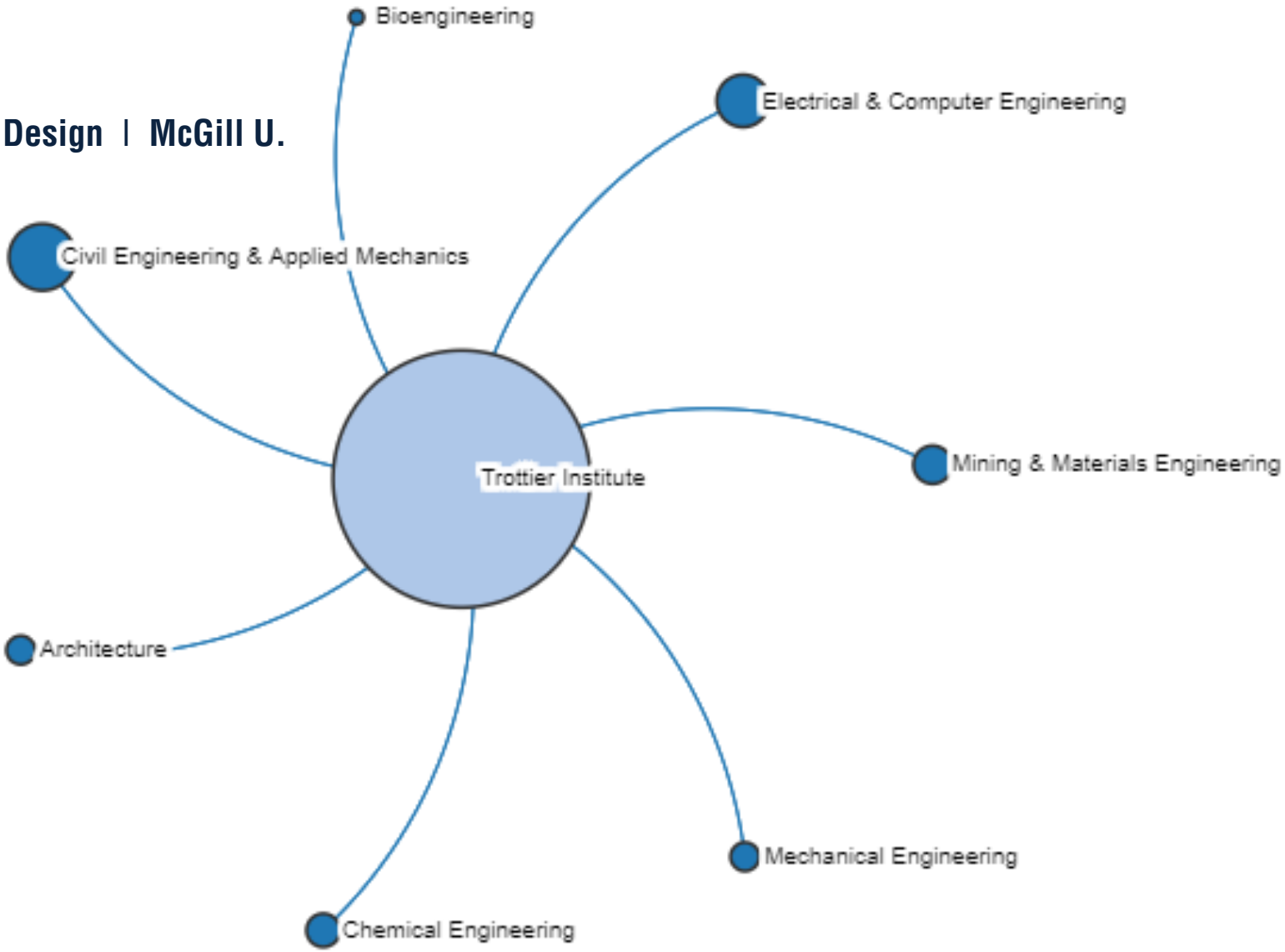
University of Toronto	School of the Environment
Arizona State University	School of Sustainability
McGill University	Trottier Institute for Sustainability in Engineering and Design
Savannah College for Art and Design	Program in Design for Sustainability
U North Carolina Charlotte	Integrated Design Research Lab
University of Arizona	Institute on Place, Wellbeing, and Performance (UA IPWP)
University of Oregon	Sustainable Cities and Landscape Hub
University of Oregon	Institute for Sustainable Environment
Birmingham City University	School of Engineering and the Built Environment
The Ohio State University	Sustainable and Resilient Economy
University College London	Institute for Sustainable Resources
University College London	Other Interdisciplinary Centers and Institutes
University of Michigan	Center for Sustainable Systems
University of Michigan	Erb Institute for Global Sustainable Enterprise
University of Pennsylvania	Center for Architectural Conservation (CAC)
Brown University	Institute at Brown for Environment and Society
Columbia University	The Earth Institute
Cornell University	Atkinson Center for Sustainability
Duke University	Nicholas Institute for Environmental Policy Solutions
Johns Hopkins	Environment, Energy, Sustainability & Health Institute
Northwestern	Institute for Sustainability and Energy
Penn State University	Institutes of Energy and the Environment
Princeton University	Environmental Institute
Stanford University	Woods Institute for the Enviroment
Texas A & M	Energy Institute
University of Arizona	Institute of the Environment
UCLA	Institute on the Environment and Sustainability
University of Illinois at Urbana-Champaign	Institute for Sustainability, Energy, and Environment
University of Michigan	Graham Sustainability Institute
University of Wisconsin-Madison	Nelson Institute for Environmental Studies
Vanderbilt Univeristy	Institute for Energy and the Environment

Sustainability + Environment

Trottier Institute for Sustainability in Engineering and Design | McGill U.

Research Areas
Sustainable Industrial Processes & Manufacturing
Renewable Energy & Energy Efficiency
Sustainable Infrastructure & Urban Development
Climate Change Adaptation & Resilience

Works across scales and disciplines



Resilience + Infrastructure

University of North Carolina Charlotte	The Infrastructure, Design, Environment & Sustainability Center
University College London	Institute for Sustainable Heritage
University College London	Institute of Communications and Connected Systems
University College London	EPICentre: An Interdisciplinary Centre for Natural Hazards Resilience
University of Florida	Florida Institute for Built Environment Resilience (FIBER)

Resilience + Infrastructure

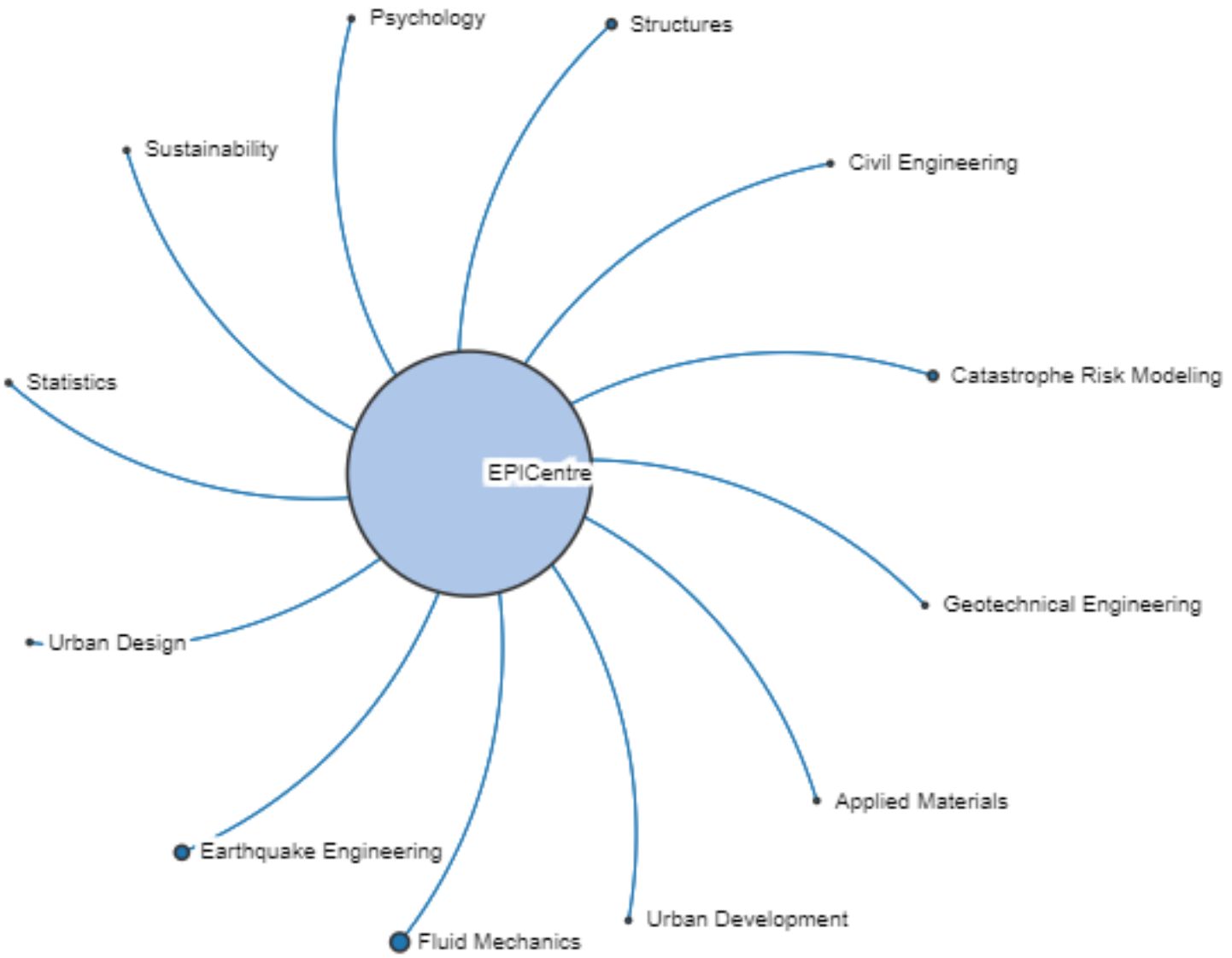
EPICentre | University College London

Research Areas

Risk Representation and Behaviours in Individuals
Post Disaster Recovery and Reconstruction
Vulnerability of Cities and Infrastructure to Natural Hazards
Societal and Engineering Resilience
Heritage Conservation Engineering

Works across scales and disciplines

Addresses technical and cultural issues



Urbanism + Urban Science

Arizona State University	School of Geographical Sciences and Urban Planning
University of Texas at Austin	School of Design and Creative Technologies
University of Texas at Austin	Urban Information Lab
The New School/Parsons	School of Design Strategies: Cities, Services, Ecosystems
The New School/Parsons	School of Constructed Environments
Massachussetts Institute of Technology	Media Lab
Massachussetts Institute of Technology	Center for Advanced Urbanism
Massachussetts Institute of Technology	Civic Data Design Lab
Washington University in Saint Louis	Divided City Initiative
Georgia Tech	The Center for Spatial Planning Analytics and Visualization
Virginia Tech	The Super Studio
Virginia Tech	Human Centered Design
University of Oregon	Sustainable Cities Institute
University of Oregon	Urbanism Next
University College London	Centre for Advanced Spatial Analysis
University College London	Development Planning Unit
University of Pennsylvania	Center for Environmental Building & Design
University of Pennsylvania	Institute for Urban Research
University of Pennsylvania	McHarg Center for Urbanism and Ecology
University of Pennsylvania	PennPraxis
University of Michigan	Ecosystem Management Initiative
University of Toronto	School of Cities
Howard University	Transportation Research Center (HUTRC)
The Bartlett School of Architecture	Space Syntax Lab
New York University	The Urban Expansion Program
Portland State	Sustaining Urban Places Research (SUPR) Lab
University of Chicago	Urban Labs Innovation Challenge
Yale University	Seto Lab
USC	Center for Sustainalbe Cities
University of Utah	Metropolitan Research Center
University of Pennsylvania	Penn Institute for Urban Research
University of Oregon	Sustainable Cities Initiative
MIT	City Form Lab
University of Buffalo	Regional Institute
UCLA	cityLAB

Urbanism + Urban Science

School of Cities | University of Toronto

Research Areas
Science of Cities
Cities by Design
Cities of Opportunity
Urban Sustainability

Works across scales and disciplines

City as cultural, environmental, spatial, financial artifact

Construction + Material Science

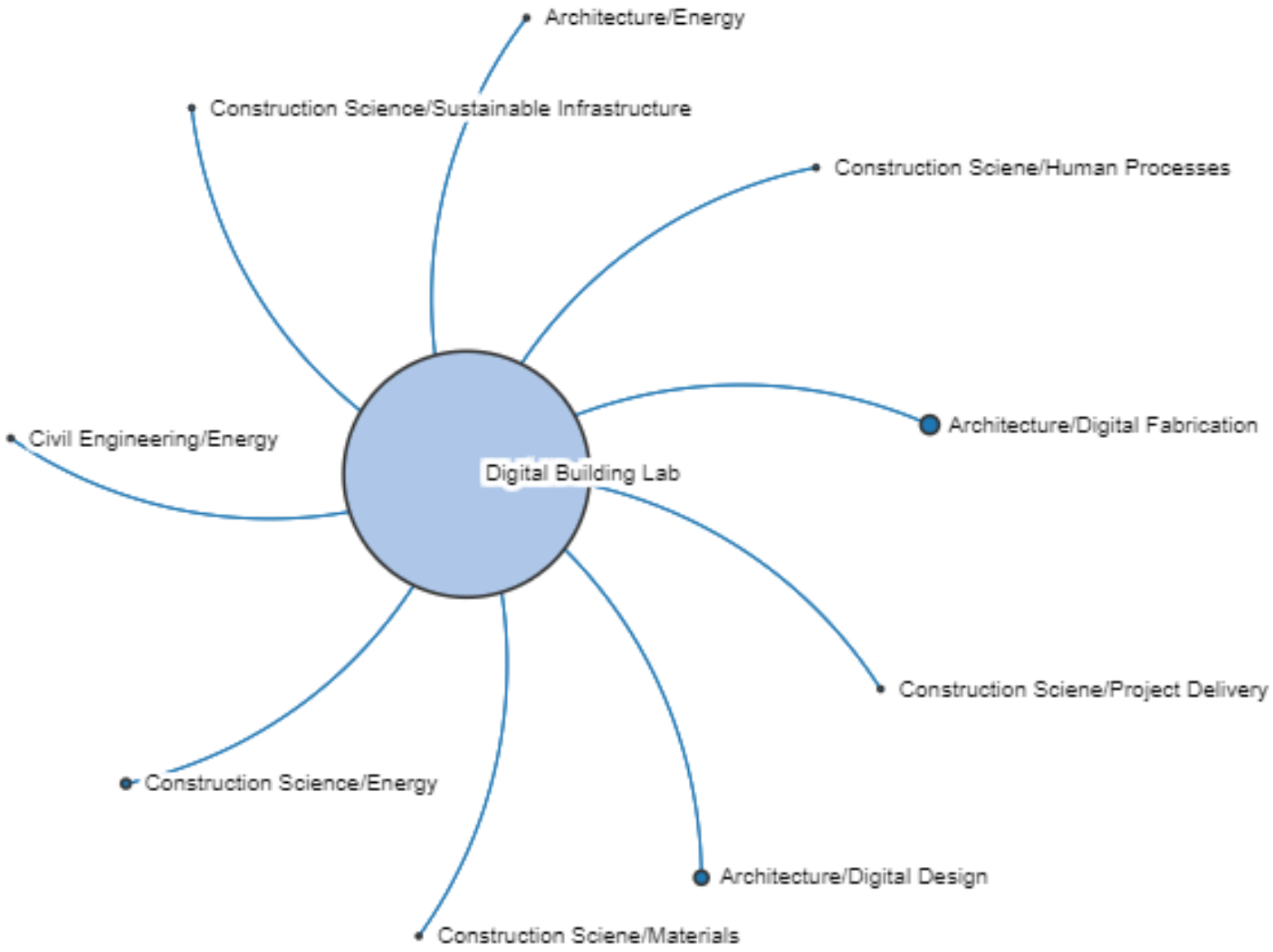
Clemson University	Institute for Intelligent Materials, Systems, Environments
University of Washington	Center for Integrated Design
Georgia Tech	The Digital Building Laboratory
Birmingham City University	Centre for Engineering
The Ohio State University	Materials and Manufacturing for Sustainability
University College London	Real Estate Institute
University of Michigan	Computational Design and Material Systems Innovation Cluster
University of Calgary	Laboratory of Integrated Design
University of Stuttgart	Integrative Computational Design and Construction for Architecture

Construction + Material Science

Digital Building Lab | Georgia Tech

Research Areas
Data Standards and Interoperability
Design Fabrication, Construction Automation
Project Delivery Systems
Smart Buildings, Infrastructure, Environments

Works across scales and disciplines



Community Design + Outreach

U North Carolina Charlotte	UNC Charlotte Urban Institute
U North Carolina Charlotte	Charlotte Action Research Project (CHARP)
University of Arkansas	Community Design Center
Louisiana State University	Coastal Sustainability Studio
Mississippi State	Community Design Studio
Detroit Mercy	Detroit Collaborative Design Center
University of Houston	Community Design Resource Center
University of Texas at Arlington	Arlington Urban Design Center
University of Idaho	Urban Design Center
University of Minnesota	The Minnesota Design Center (MDC)
Kent State University	Cleveland Urban Design Collaborative
University of Louisville	Urban Design Studio
University of Louisville	BUDAS, City Solutions Center, City Explorer, Capstone Studios

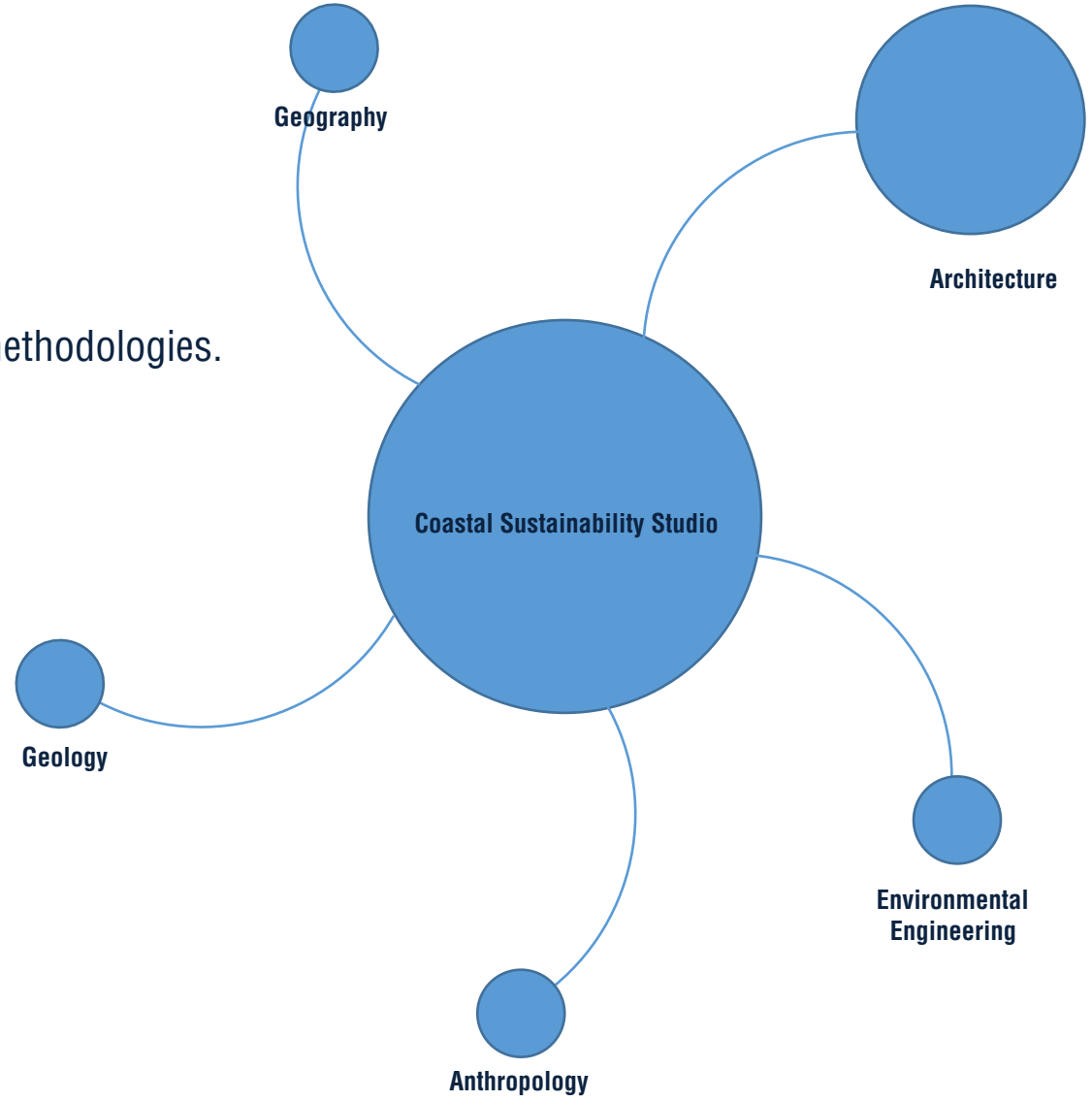
Community Design + Outreach

Coastal Sustainability Studio | Louisiana State University

Research Areas

Enable new models of integrated research and design applications.
Develop design thinking with a systems approach using performance-based methodologies.
Maintain a studio space fostering openness and collaboration.
Work closely with community-based partners.
Work in support of local, state, and federal initiatives.

Works across scales and disciplines



Energy + Environment

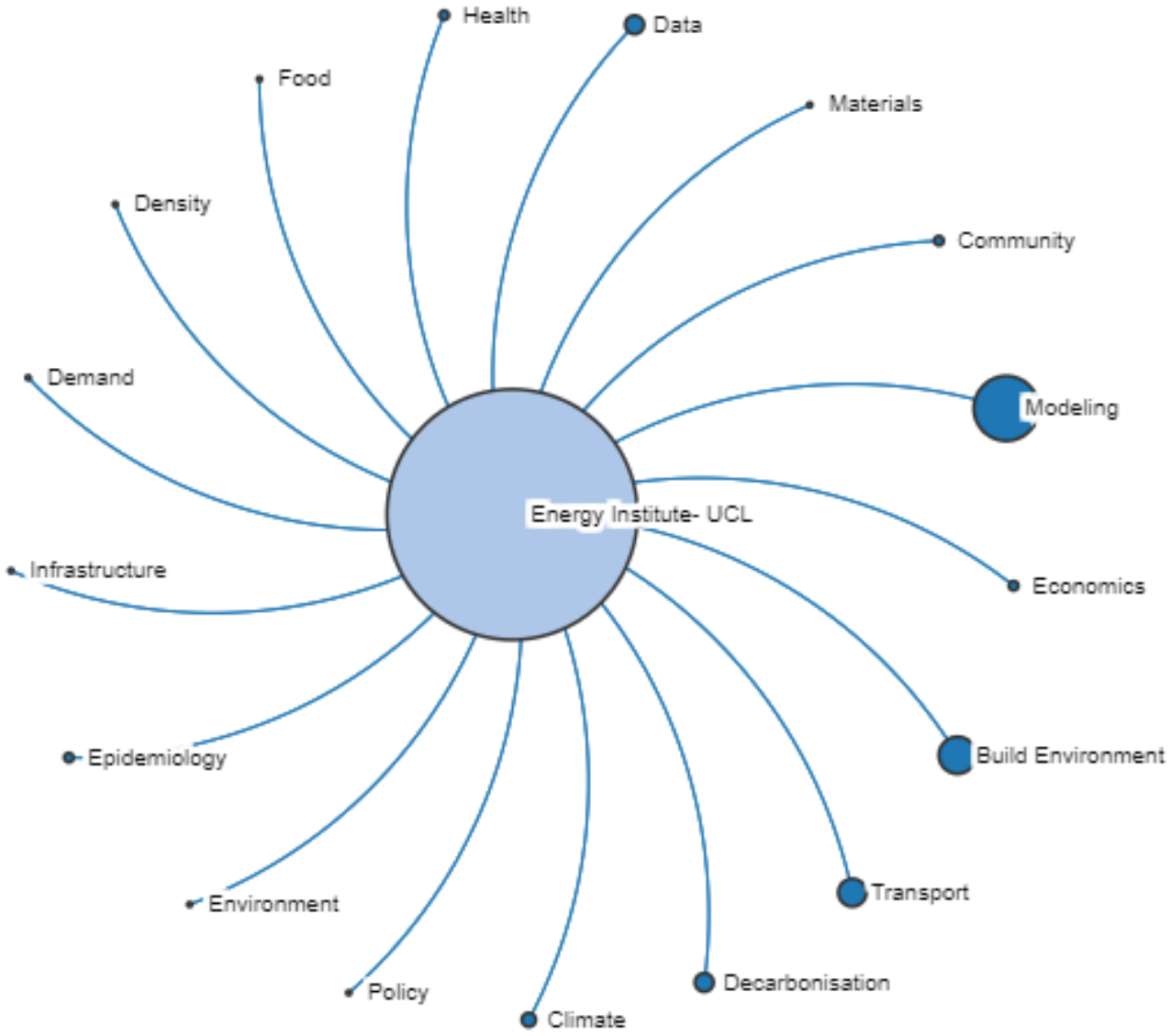
Drexel University	A.J. Drexel Institute of Energy and the Environment (IExE)
University of Oregon	Energy Studies in Buildings Laboratory
University of Oregon	Fuller Center for Productive Landscapes
University of Oregon	High Performance Environments
University College London	Energy Institute
University of Pennsylvania	Kleinman Center for Energy Policy
Howard University	Center for Energy Systems and Control (CESaC)
Boston University	Institute for Sustainable Energy
Washington State University	Center for Environmental Research, Education and Outreach

Energy + Environment

Energy Institute | University College London

Research Areas
Energy and Environmental Systems
Energy and Data Analytics
Energy and Transport
Energy and Buildings

Works across scales and disciplines



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