

# Syracuse University Infrastructure Institute

## Think Tank Listening Session

Public-Private Partnership Conference & Expo 2019  
March 5<sup>th</sup>, 2019 Dallas, TX

## Report of the SUII Think Tank Listening Session

### Executive Summary

Founded in 2018, the Syracuse University Infrastructure Institute aims to educate students interested in pursuing infrastructure development careers. In partnership with Association for the Improvement of American Infrastructure (AIAI), the Institute conducted a listening session with industry leaders to collect their insights on infrastructure delivery. This insight will inform future academic programming and research that aligns with the skills, expertise, and knowledge needed for efficient, effective and socially responsible infrastructure delivery.

The session had several methods for acquiring comments. These methods were: mobile text polling that collected answers to questions on a PowerPoint presentation in real time; general comments received from participants and recorded from the floor by Institute staff; and a paper survey handed out to each attendee at the beginning of the session.

### Background

#### I. What is SUII?

The Syracuse University Infrastructure Institute is a unique interdisciplinary venture to educate and enable the next generation of professionals to enter the rapidly expanding world of infrastructure delivery and management. The Institute works with all colleges at Syracuse University in facilitating infrastructure-related research and creating infrastructure-related curriculum for undergraduates, graduate students, and industry professionals. Several of the project areas include public-private partnership delivery models, smart city technology, asset management, and green infrastructure.

#### II. Why the think tank was held

SUII is developing academic programming in infrastructure delivery and management. The Institute reached out to industry leaders to better understand the skills gap faced by the infrastructure industry and the innovative practices industry leaders are employing today. SUII, joined by AIAI, conducted a listening session with a focus on collecting insight in these three areas:

- Academic and educational offerings in infrastructure, for individuals seeking careers in the public or private sectors or for individuals seeking to improve their skills in this industry
- Research and commentary priorities regarding infrastructure delivery and policy.
- Multi-disciplinary integration to advance infrastructure delivery and policy.

#### III. How AIAI organized the Think Tank Listening Session

The session was hosted in partnership with Association for the Improvement of American Infrastructure at the annual Public-Private Partnership Conference and Expo in Dallas, Texas. It was held on March 5th as an ‘invite-only’ lunch session. Leadership from the SUII, Director Laura J. Steinberg and Founding Advisor Steve Charney, sat on the panel along with Professor Baris Salman, of Syracuse University College of Engineering and Computer Science, and Bill Hvidt, of the Hvidt Group.

The AIAI leadership invited members to attend this event. In addition, panelists were encouraged

to invite from their networks and others they may have encountered at the conference. In attendance were project managers, consultants, financiers, lawyers, and government officials. They hailed from various offices and included representatives from such organizations as Deloitte, Somat Engineering/TerraCom LLC, Louis Berger, WRC, and transportation departments from Virginia and Los Angeles.

More than forty people attended the session. When prompted, 15 of 22 registered respondents in the audience reported that they represented the private sector, while the other 7 indicated that they represented the public sector. The remaining attendees did not participate in the text polling system used during this event.

#### IV. Commentary

Three questions defined the conversation. Answers were captured in real time by a polling program that attendees responded to via text messaging. In addition to the polling, panelists also fielded questions from the floor. A summary of attendee responses are in the next section and *Appendix A*. Attendees also completed a paper survey which further elaborated on these questions (*Appendix B*). The Appendix contains the verbatim list of answers received for each question as well as the written survey results. Summarized in further sections are the survey responses, polling results, and discussion between the panelists and attendees.

#### **Discussion Questions**

1. *Talent and skill set deficits: When looking to add personnel as employees or consultants what are your greatest challenges?*

Attendees provided over 20 responses. Three themes emerged: ability to see a big picture perspective, soft skills and critical thinking, and ability to perform foundational tasks specific to infrastructure industry needs.

First, employers want new employees to have a big picture perspective for problems and projects. Polling responses included a desire for candidates to understand the life cycle of asset management and the need for new interdisciplinary abilities. One remarked, "This is a structural challenge. When hiring from finance, new hires are great at what they do, but don't understand the big picture outside of their narrow skill sets. Infrastructure requires big picture perspectives". Graduates entering the infrastructure industry need to know a spectrum of skills to manage a project.

One attendee from an infrastructure development fund noted the deep complexity in public-private partnerships. A partnership can include several agencies, often each working in their own silos. "There needs to be a bigger picture view. Earlier in the academic career you need to get these civil engineering students to have other training - especially in business".

Second, there was a desire for candidates to have soft skills and critical thinking. Many attendees thought it was important to teach emotional intelligence. In recent years, public infrastructure development has become outward-facing field that regularly requires engagement with the public. Attendees thought it was important for new employees to have high emotional intelligence, negotiation skills, an ability to communicate with the communities the projects serve, and political wisdom. One attendee, with an infrastructure engineering background, commented, "We need certain people who have the right licensing in the industry. But we also need someone to wrap around that with soft skills, critical thinking, collaborative thinking."

Third, attendees wanted academic programing that incorporated infrastructure delivery fundamentals, such as procurement, contract development, and financial management of assets. One attendee explained that basic analytical functions at her consulting firm, like spreadsheet analysis, can be taught on the job. "We can teach the mundane spreadsheet stuff to these kids. But we need them to already have the fundamental understanding of economics and markets". Providing such training to new employees can be costly for firms.

Attendees wanted to see general soft skills as part of a curriculum that focused on P3/Infrastructure such as including teaching students how to engage the community on project development and mitigation. One respondent from a private firm commented, "We need students with special soft skills and emotional intelligence to connect with multiple agencies. But I'm afraid students I've been getting are lacking communication skills. I hope that SUH can teach them those [soft] skills and communication, while signaling to other schools what the industry need is".

2. *What topics of instruction would you include in a curriculum to prepare students to participate in the P3 / Infrastructure industry?*

In addition to soft skills, attendees wanted to ensure job candidates had the technical skill sets that are essential to being successful in the industry. Many stated a need for courses that taught project and risk management. Responses from the table survey on the skills needed included data collection and analysis, finance, contracts methodology, and legal administration.

The prospect of internships or some other method of an employment 'pipeline' also received a lot of interest. A government consultant in the audience wanted to "see an internship program like a MBA style capstone. Where students get connected to an organization or business to help solve a problem or perform a project". Another attendee, in P3 development, acknowledged that internships was their "main method of finding people" and that universities can help signal to them what a good candidate is by the 'pipelining' they provide.

3. *What research priorities would you like to see the Syracuse University Infrastructure Institute undertake?*

There was a significant amount of interest in research which addresses the impacts of public-private partnerships. Attendees were curious to know P3s' impacts on innovation, efficiency, labor markets, and the general public. Some of the areas discussed were: collaboration, public engagement, and best practices. One attendee expressed the desire to see research that juxtaposes estimated costs and benefits of a public-private project with the final actual costs and benefits. Their insight comes from an infrastructure delivery background: "We need help from universities to better understand our business models".

There was interest in calculating the value and quality of a project. For instance, some attendees suggested the Institute investigate the best practices of the partnerships, what owner satisfaction looks like, and the primary causes of delays in P3s. Other requests directed towards addressing challenges in the P3 industry ranged from how to be successful in freedom of information requests to better understanding risk transfer to developing deliberative public engagement.

One participant from a consulting firm pressed the importance of having a robust global library of P3 experiences. He hopes that the SUII could one day be the place to centralize important data on P3 interactions. The participant added, "Not only could best practices be derived from this data, but it could also help determine which procurement models to use when pursuing federal funding".

## **Conclusion**

This listening session, held in partnership with the AIAI, provided insight from many industry leaders and subject matter experts within the public-private space. The Institute will use this information to inform our vision for its long-term strategy. These data will also inform research priorities, academic programs, and other resources for students and employers. Industry leaders have acknowledged that there is a need for a university resource to deliver expertise in infrastructure, whether that be in research that helps redefine their work or in training the future employees they recruit. Furthermore, it is clear that the academic curriculum needs to have an interdisciplinary approach. Public-private partnerships in infrastructure are becoming more complex, requiring collaboration across agencies and depth of knowledge in intersecting fields like finance, planning, design, law, and data analysis. Soft skills, such as interpersonal communication and critical thinking, are now expected of successful job candidates. SUII will aim to marry the technical depth the industry needs with soft skills to fully equip students for entering and prospering in the infrastructure industry.

## **Acknowledgements**

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## Appendix

### APPENDIX A: Text Polling Responses

#### Participant background in public/private sector

Private: 15

Public: 7

Total: 22

**Talent and skill set deficits: When looking to add personnel as employees or consultants what are your greatest challenges?**

Contracts
Procurement
Emotional intelligence
Fearless decision makers
Negotiation skills
Understanding the fluidity of P3s
Leadership skills
Political wisdom
Understanding performance approach
Understanding risk transfer and allocation
Effectively engaging the communities served
Understanding the whole spectrum of required skills
Skills that combine traditional infrastructure and new technology
Understanding of lifecycle and asset management
Lack of inter-disciplinary skills and knowledge
Project management skills.
Infrastructure delivery is far more complicated today than 10 or 15 years ago.
Engineers with an understanding of finance
Lack of experience
Lack of understanding
Well rounded engineers

**What research priorities would you like to see the Syracuse University Infrastructure Institute undertake?**

Government funding programs related to infrastructure
Consistent approaches or templates for VfM and other basic P3 analysis.
Causes of schedule delay and cost overruns in traditional procurement and P3
Effective public/stakeholder involvement
Barriers to adoption of p3s per asset types
Owner satisfaction with p3 performance
The effect of p3 on unionized labor
Is there any current research that the Institute has conducted?
The effect of p3 on efficiency
Defining project objectives more clearly
The effect of p3s on innovation
Understanding of freedom of information requests - how to be successful
Costs of deferred maintenance
Risk Transfer
Quantifying risk
Performance of DB and p3 projects
Communication to the public at large. Taxpayers must understand infrastructure issues.
Disseminate lessons learned and best practices from international P3 precedents
Teach collaborative behavior
Collaborative Challenge project

## APPENDIX B: Table Survey

Following are responses from a survey provided to attendees of the SUII Think Tank Session.

### Participants

Public Sector: 2

Private Sector: 4

Unknown: 4

**What topics and skills would you like to see developed in undergraduate or graduate degree programs designed to prepare students for a career in infrastructure planning, management, and project delivery?**

Dynamic Portfolio management - office of portfolio management. how to hold a meeting of all levels of project management.
Engaging Community, Diversity in Problem Solving, Changing Mindsets - fluidity of P3s
Using Data in infrastructure Projects, Large Scale PProject management
Infrastructure Planning and Management, Risk Management Transfer, Public Administration
Project Management, Project Finance, Collaboration
Legal contacts generally, Risk allocation between the public and private sector, Financing models/structures debt/equity and capital mkt vs bank finance, legislative constraints-political will and enabling legislation
History/importance of public infrastructure and its mission, Project Management (PMBOK), Communication/persuasive writing
What it takes to get infrastructure delivered and maintained, Delivery options and risk transfer DB/PB, Whole-life concepts & Evaluations
Understanding the value of life cycle, Asset recycle - the value of recapture

**What topics and skills do you suggest teaching to students to facilitate public-private engagement on infrastructure?**

Finance.
Market sounding strategies and cost savings strategies for innovative delivery
Financial Risk Mgmt, Community Engagement, Business Assessment and Readiness
Think about other Skills,/building for workforce who needs skills to work on P3 projects.
Communications Skills, Public Policy
Same as Q1, communication writing skills, data analysis
Contracts methodology, participation in a bid for P3 as a class project
Contractual (legal) structure



**What role can educational institutions play (through short courses, etc.) in developing capabilities of professionals already in the workforce as they participate in the P3 and infrastructure industry?**

P3 Procurement Awareness, Construction Mgmt, experience on projects
You can play a role in developing a DBE/minority firms to build capacity/ skills to perform on P3 projects, you can also help to train workforce/citizens seeking jobs.
Risk Management, Asset Management
successful and failed case studies
Educational short course on P3s (there is an international org that does that/DBIA does it for DB/BATIC does it for DOTs) lots of room to expand
Conflict resolution between disparate parties

**In your opinion, what are the top three areas of infrastructure research that you would like to see:**

P3 Delivery Models
Leveraging DBE participation
Leveraging DBE participation, Training needs for P3 professionals
Risk Transfer and Allocation, Leveraging DBE participation, P3 value proposition
P3 Value Proposition, Risk Transfer and Allocation
P3 Delivery Models , Risk Transfer and Allocation , Training needs for P3 professionals
Risk Transfer and Allocation , P3 value proposition, Leveraging DBE participation
P3 Delivery Models, Risk Transfer and Allocation, Asset Management, P3 value proposition, Leveraging DBE participation, Training needs for P3 professionals
P3 Delivery Models, P3 value proposition

**General Comments:**

Consider involving thought leaders on P3 from other universities and European and Canadian counterparts.
We have had conversations at AIAI about a student connection whereby each school would form a team to respond to a bid--really stress