

**Engineering Political Fluency:
Conceptualizing the Political
Identity Development of
Engineering Majors**

Agenda

- Purpose
- Context
- Conceptual Framework
- Research Design
- Findings
- Implications





Setting the Context

Washington
8:40 AM ET



MARCH FOR SCIENCE

IN MOMENTS: MAIN EVENT IN WASHINGTON TO KICK OFF



5:40 AM PT

RIGHT NOW

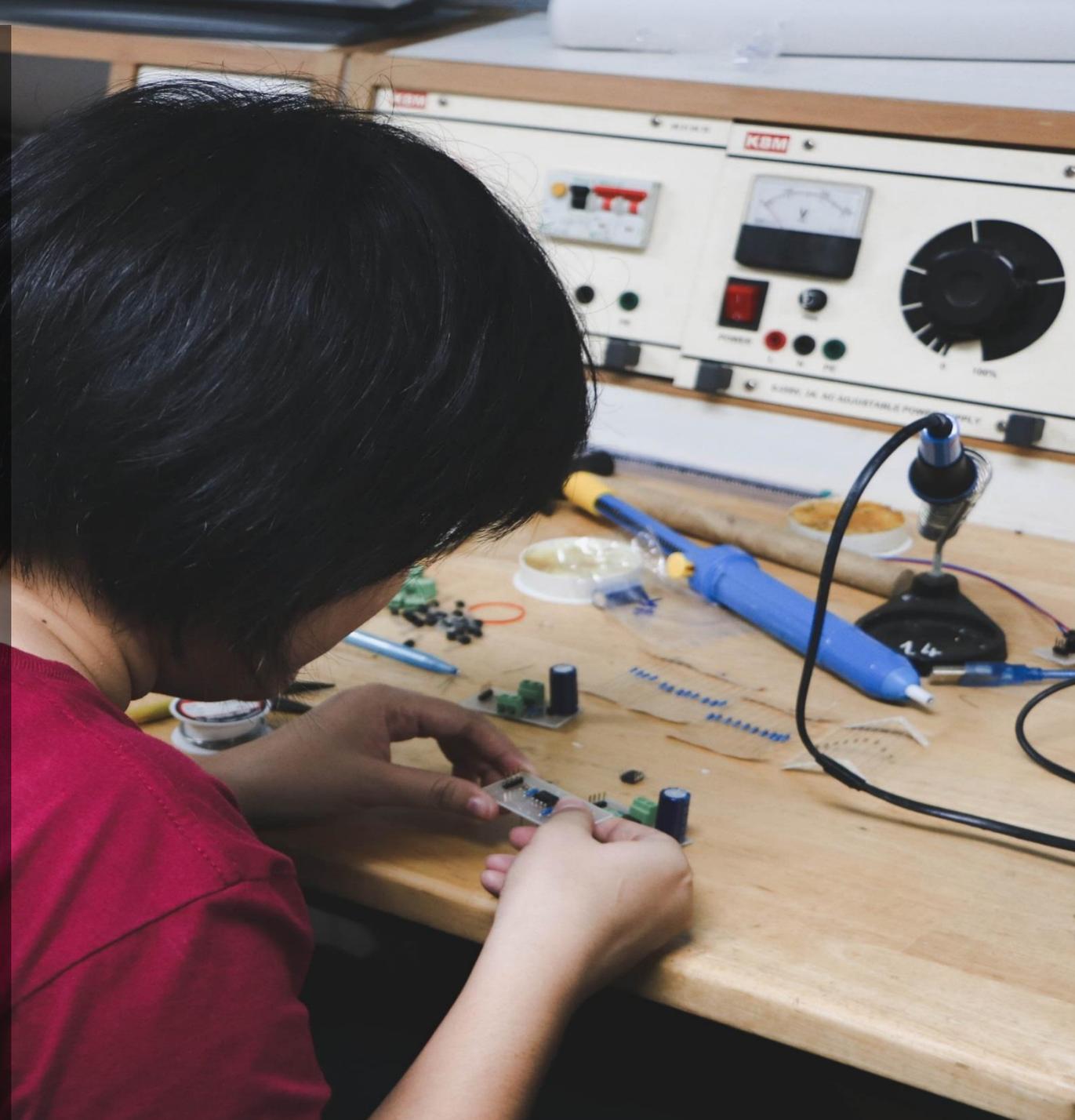
PORTLAND  57°

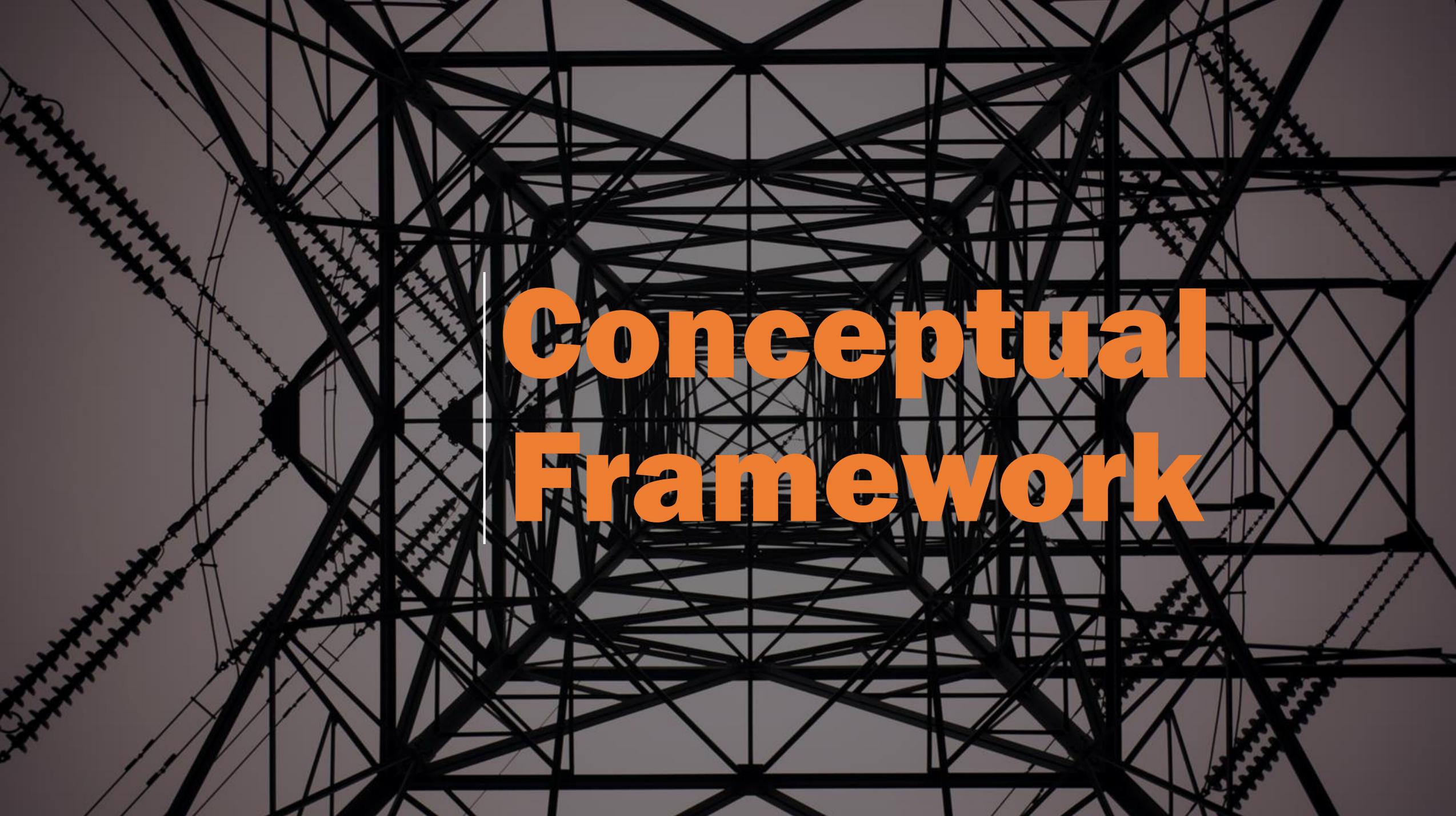
SAN FRANCISCO  54°

SEATTLE  58°

NEW DAY

“The **major focus** in undergraduate engineering education continues to be on the mastery of highly technical concepts and skills, **with less emphasis on broader societal impacts** that can be realized as a result of said skills”





Conceptual Framework



**Professional Identity
Development**

Engineering Identity

**Social Identity and
Context Informed
Engineering Identity**



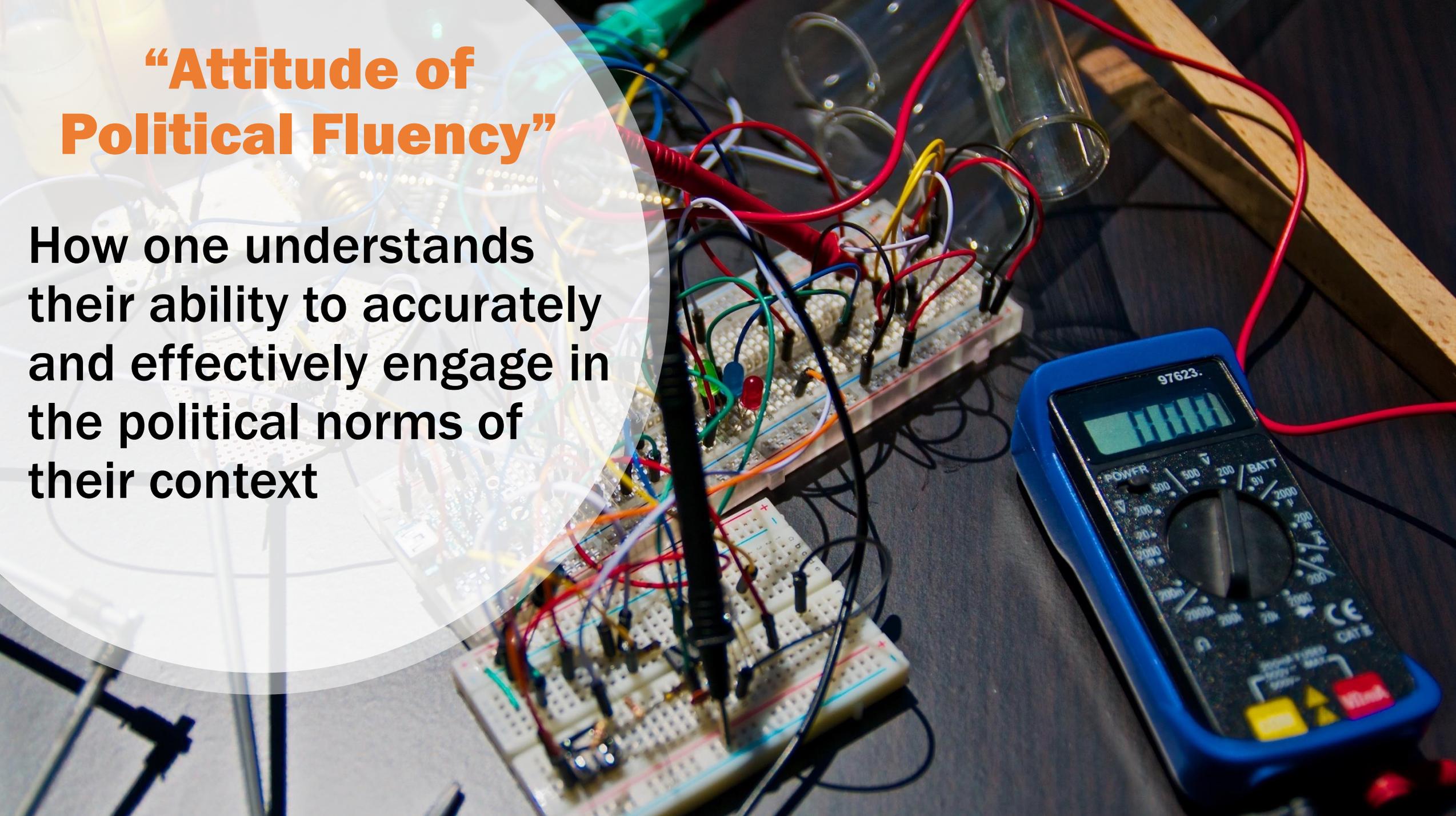
**Service
Learning &
Engineering**



Professional Codes of Ethics

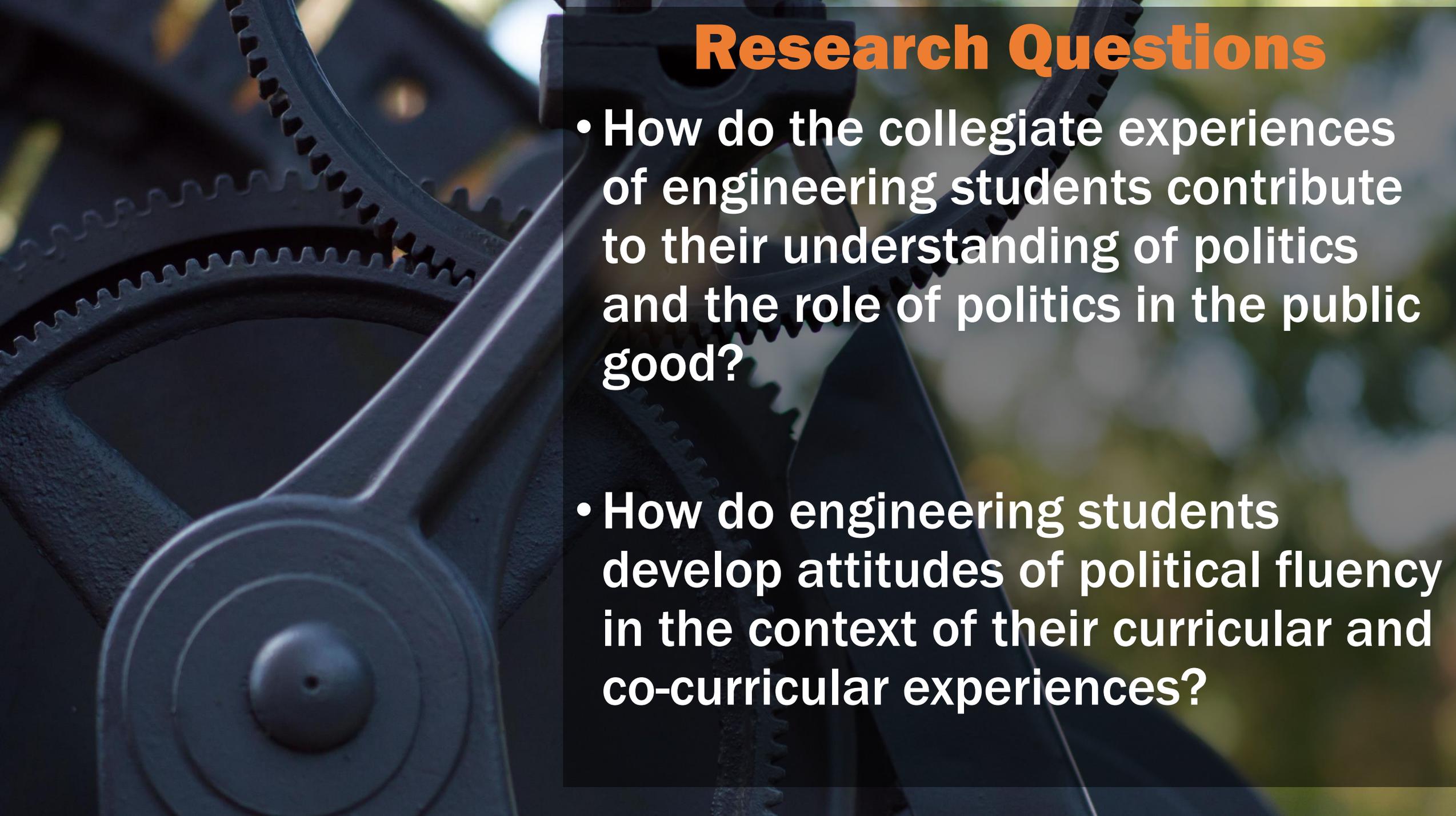
“Attitude of Political Fluency”

How one understands their ability to accurately and effectively engage in the political norms of their context





Research Design



Research Questions

- How do the collegiate experiences of engineering students contribute to their understanding of politics and the role of politics in the public good?
- How do engineering students develop attitudes of political fluency in the context of their curricular and co-curricular experiences?



Research Approach

Multi-site Case Study



Site & Participant Selection

3 mid-size 4 year institutions
Declared engineering majors



Data Collection

Focus Groups with 4-8 students
Interviews with Key Administrators



Data Analysis

2 Cycle Thematic Coding



Findings



Time and Opportunity Constraints

“With engineering, the **curriculum is very demanding**. Unfortunately, the way the engineering curriculum is, many students don't have the opportunity to study abroad. When they come into programs like this, it's very competitive in terms of the course work, the requirements, the expectations. **To perform, you don't need the *distraction* of going out to protest, or going out and getting information, or going out and being active in communities, and things like that.**” – University Administrator

Time and Opportunity Constraints

“I'd kind of say that they're separate. There's the political stuff, which I was kind of interested in before, and I always kind of followed. And then there's engineering. And I don't see the ... **Engineering is engineering. I don't study engineering to learn about politics.** I study [engineering] to learn about design and building. And then there's politics, which is a separate thing that you have your opinions on, you vote on, and you do whatever with. They're separate.”





Integrating Peripheral Non-Technical Experiences

“That would be up to the professors to make the students think about it in their design, because it's a design course, **to think about with your design the social implications of your design.** Who does it affect? How does it affect them? If there would be alternatives to limit the amount of people that are negatively affected. I think you could definitely put that in a lab.”



Negotiating Public vs Private Benefits

**“All of us [engineers] ...
we're just impacting society
and making it better”**



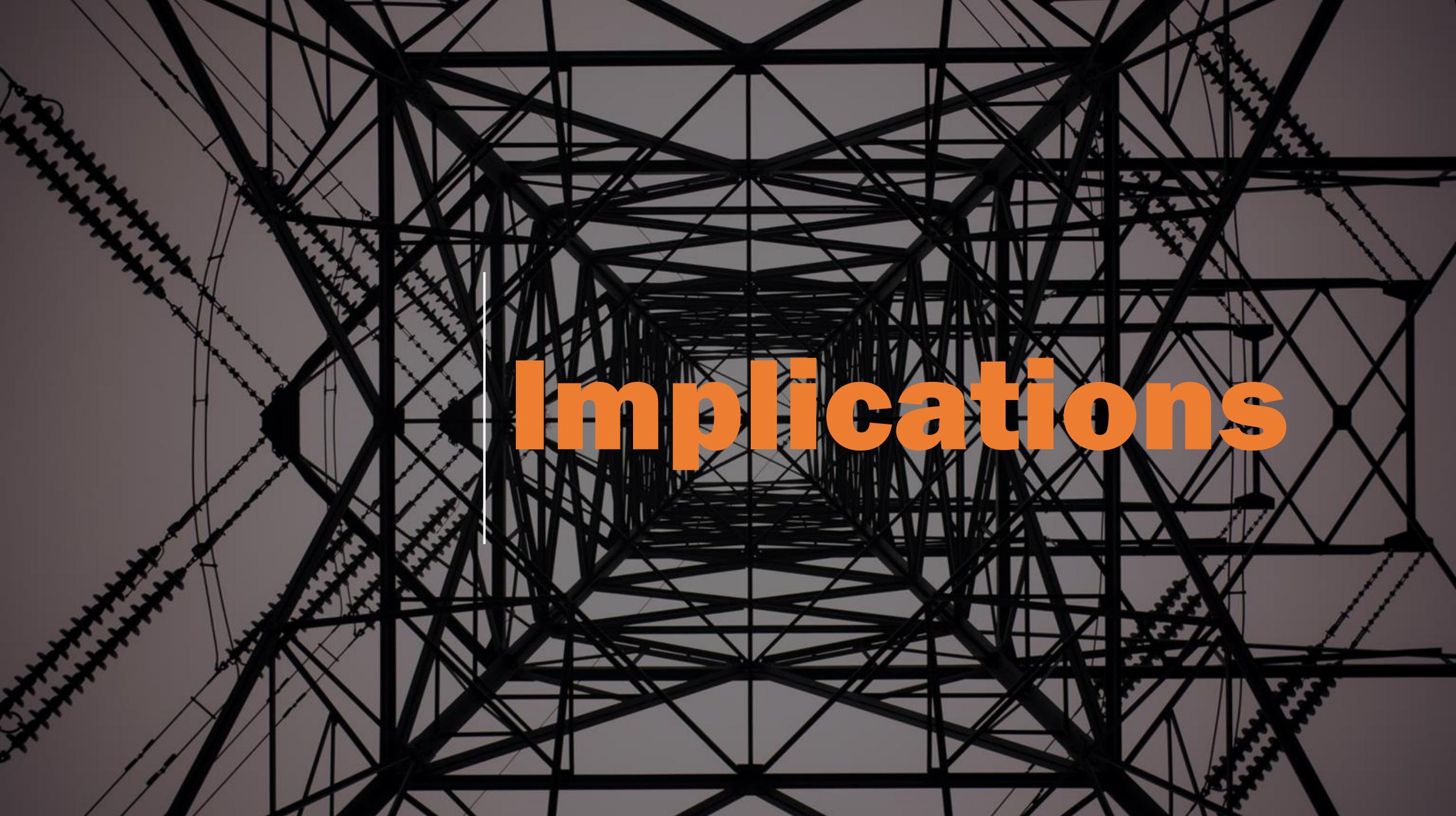
Negotiating Public vs Private Benefits

“I just chose electrical engineering because I wanted a job after college. I've been fairly politically aware and I find politics really interesting, but I just ... **it's not really a future...**”



Counter (or safe) Spaces

“You'd see people sleeping [in the library] because they'd be there that long. So, you would go, you would get dinner and then you'd just sit there all night and do your group work. Work was done and work was also not done” ... **[The library is the] one place where it was like the real world and then engineering library.”**

The background is a dark, monochromatic image of a complex, repeating geometric structure. It consists of a dense network of intersecting lines that form a series of interconnected triangles and squares, creating a perspective that draws the viewer's eye into a tunnel-like depth. The lines are dark, possibly black or dark grey, against a slightly lighter, muted grey background. The overall effect is one of intricate complexity and structural depth.

Implications

Accreditation

**Strengthening the Bond
Between Policy and Engineering**

Engineers Engaged in Politics



Thank You

Demetri L. Morgan – Kendrick Davis - Norma López