

2021 ASEE ANNUAL CONFERENCE



THE SUN ABOVE, THE FUTURE AHEAD



Long Beach, California
July 26–29, 2021



**ASEE 2021
ANNUAL CONFERENCE**

**THE SUN ABOVE,
THE FUTURE
AHEAD**



**Long Beach, California
July 26–29, 2021**

**An integrated vision
of management
and
leadership
for
delivering
21st-century civil
infrastructure**

Background

- Civil engineering in the years 2020 (NAE) and 2025 (ASCE) will require skillsets beyond the traditional technical competence to include “leadership ability ...”.
- Civil engineers shall serve “competently, collaboratively, and ethically” as master “leaders in discussions and decisions shaping public environmental and infrastructure policy.”

Background

Implications of achieving this goal:

1. The problem of repositioning the profession as master leaders
2. The problem of recruiting champions
3. The problem of creating educational and experiential pathways for future leaders

ASEE 2021
ANNUAL CONFERENCE

THE SUN ABOVE,
THE FUTURE
AHEAD



Long Beach, California
July 26–29, 2021

The Problem of Repositioning the Profession as Master Leaders

Key Findings and Conclusions

The role of master leaders in infrastructure policy discussions requires civil engineers to influence or create large-scale policy change, either directly or indirectly, which is civil engineering advocacy.

Key Findings and Conclusions

- ASCE aspires to be a significant factor behind economic growth.
- The role of master leaders in infrastructure policy discussions requires civil engineers to influence or create large-scale policy change.
- ASCE policy documentation and the report card need to clearly demonstrate how core infrastructure investment in the 21st century drives long-term GDP growth for the American economy.
- In order to be seen as credible advocates for infrastructure funding and policy, engineers need to have greater leadership abilities and an ability to understand and influence key influencers and policy makers.

Key Findings and Conclusions

- Civil engineering leadership is complex and often discussed out of the context of 21st-century project delivery and civil infrastructure.
- Project success in civil infrastructure delivery is a function of management capacity and the capability to cope with constraints by changing the project team's ability to deliver it with a leadership capability that can augment management capacity.
- Civil engineering leadership is the highest aspect of project management and can overcome the inherent limits of management control and project constraints.

Key Findings and Conclusions

Engineering Leadership needs a more formal definition following the three-pronged stool of practice.

Managing people



Developing technical solutions for delivering products

Leading people

Key Findings and Conclusions

Engineering Leadership is a unique skillset that is necessary for successful project delivery.

- It goes beyond technical knowledge or even general leadership, as you need both to lead civil infrastructure projects.
- Although general leadership and management are taught as part of business degrees, with extensive post grad professional course availability, it is sparsely covered in engineering curricula.
- ASCE has resources and should continue to develop them.
- ASCE's "Vision" document foresaw this need, yet it has not yet been fully realized.

**ASEE 2021
ANNUAL CONFERENCE**

**THE SUN ABOVE,
THE FUTURE
AHEAD**



**Long Beach, California
July 26–29, 2021**

The Problem of Recruiting Champions

Key Findings and Conclusions

- To establish the profession as effective leaders, professional organizations such as ASCE need high member engagement.
- This can be increased through the concept of a pyramid of engagement which will benefit each members' professional and leadership abilities.

Pyramid of Engagement



**ASEE 2021
ANNUAL CONFERENCE**

**THE SUN ABOVE,
THE FUTURE
AHEAD**



Long Beach, California
July 26–29, 2021

The Problem of Creating Educational and Experiential Pathways for Future Leaders

Key Findings and Conclusions

It is important to instill the need for leadership development in engineering curricula and to introduce coursework to cover the basic necessary skills in order to set up professionals and the profession to be effective leaders and advocates.

- This also hopefully sets up a pattern of lifelong learning in this area.
- ASCE tools such as the Engineering Grades, which guide professionals in career advancement.
- The grades need to be updated to more strongly emphasize leadership skills and the pathway to develop them. This effort is underway, and volunteers are needed.
- This should go hand in hand with development and dissemination of leadership and management training by ASCE.

Key Findings and Conclusions

- ASCE should update the Vision 2025 document with a 2050 vision that recognizes ASCE's aspirations to be a significant factor behind the American domestic economy's economic growth in the 21st century.
- ASCE seeks to instill confidence in the future and create an environment of predictability and reliability in project delivery that allows the private and public sectors to make investment decisions.
- A Vision 2050 document should be reframed to be more practically focused on integrating the role of engineers in society as a whole.

Summary

An integrated vision of leadership and management is necessary to deliver 21st century infrastructure and the civil engineering profession must establish itself as a leader in advocating for infrastructure policy, recruiting champions, and creating educational and experiential pathways for future leaders.