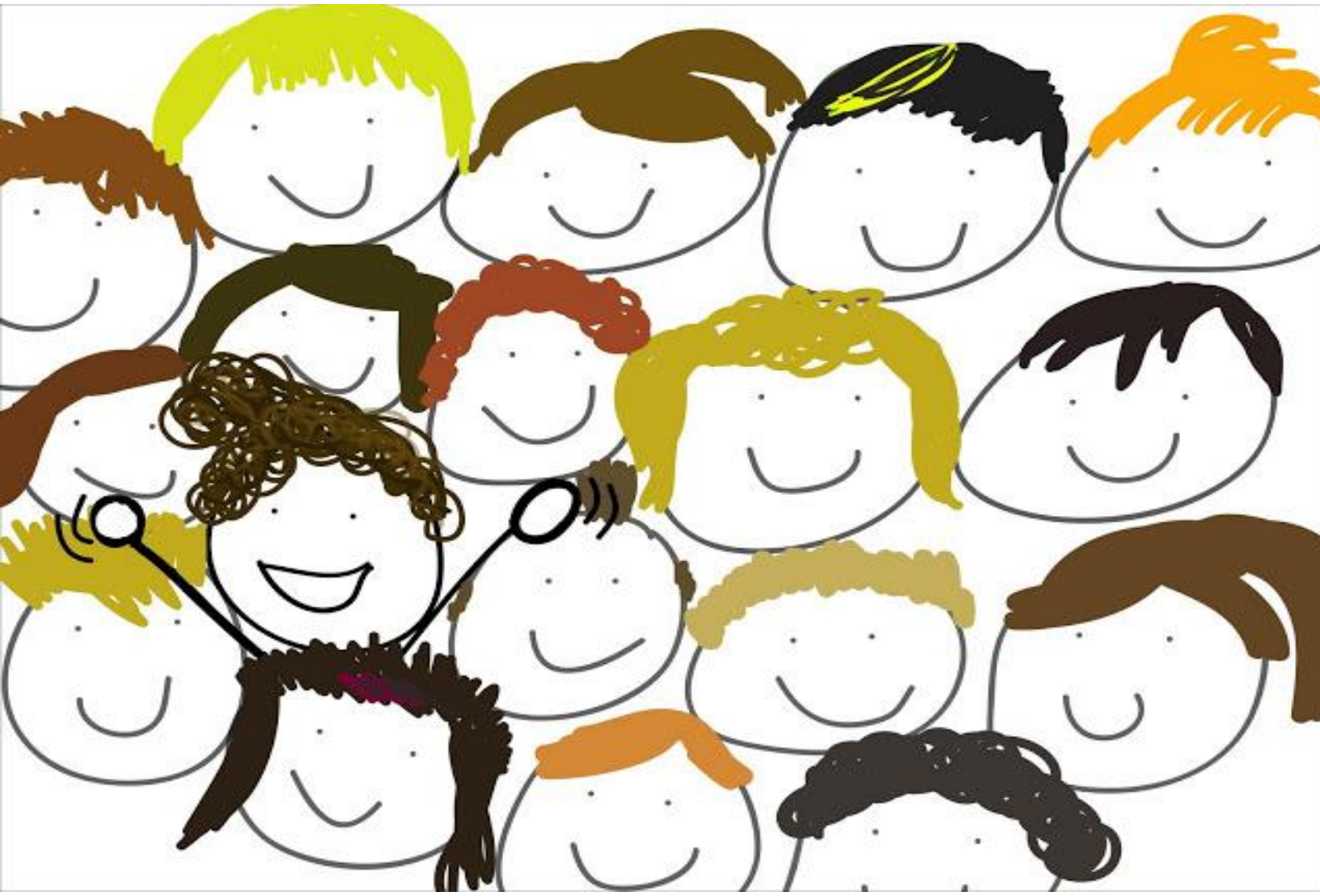

THINKING LIKE AN ENTREPRENEUR

DESIGNING YOUR EDUCATIONAL PROJECTS FOR IMPACT

ASEE AMERICAN SOCIETY FOR ENGINEERING EDUCATION

NSF

Introduction

Are you frustrated that your instructional innovation or use of a research-based instructional strategy doesn't spread as fast or far as you would like? This session may help since it is focused on a process (Lean Start-Up) to guide the sustainability and scalability of educational innovations. It is intended and designed for innovators interested in deepening the impact of a project, product, or program to improve STEM education. The Lean Start-Up methodology, the Business Model Canvas, and Customer Discovery are presented as tools to assess the potential for sustainable scalability at early stages of project development. The session is designed as a means to promote the Lean Startup approach to a broader cross-section of the STEM education ecosystem. The primary goal is to awaken an entrepreneurial spirit among attendees, so they consider early in their projects the core needs their work will address across a broad spectrum of the population. Session attendees will receive course materials developed as part of the NSF-funded I-Corps™ for Learning (I-Corps™ L) program, and will work with one another to further their understanding about sustainable scalability of educational projects.

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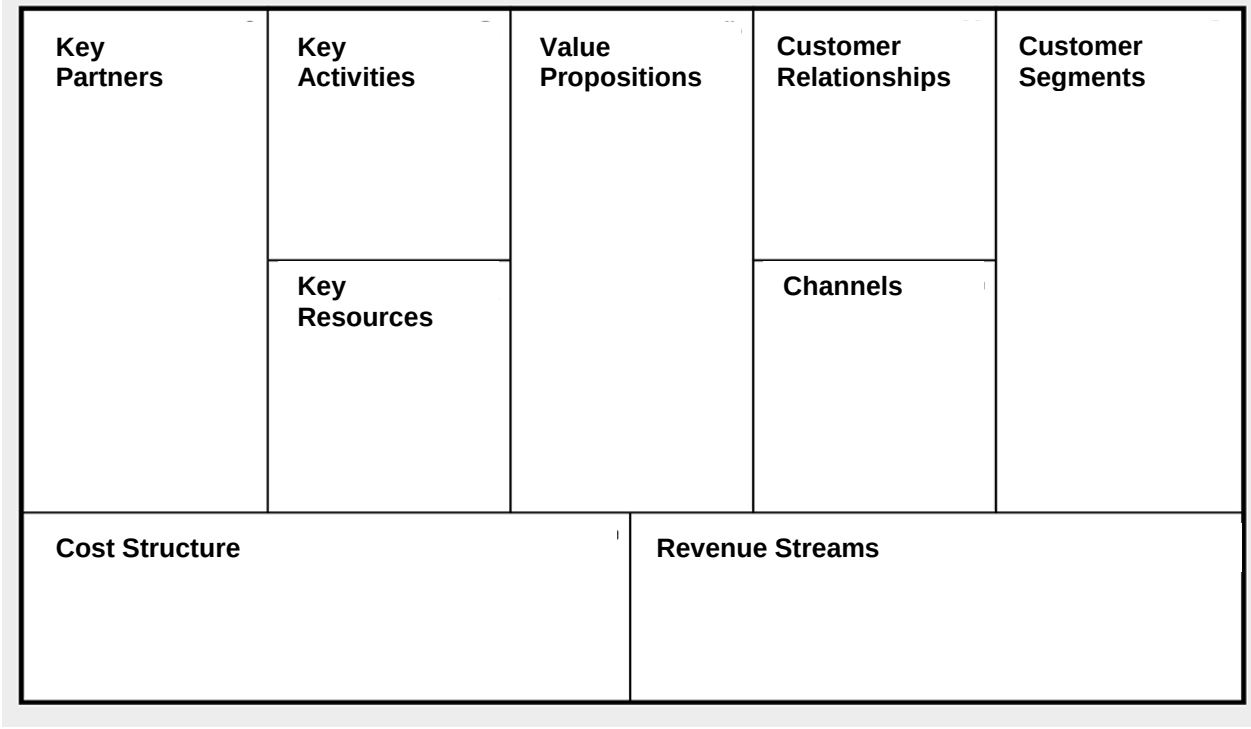
Agenda

Introduction of session and facilitators	1 min
Introduction to SMART START and I-Corps™ for Learning	10 min
The Lean Start-Up process Business Model Canvas Customer Discovery Process Agile Engineering	30 min
Customer Segments (CS) and Value Propositions (VP) Exercise • CS and VP definitions and examples • Participants work in pairs on the CS-VP matrix focused on one or two examples of innovation. • Identifying 2-3 CS and a unique VP for each one	30 min
Workshop Wrap-up **Survey - https://www.surveymonkey.com/r/IMPACTeec**	4 min

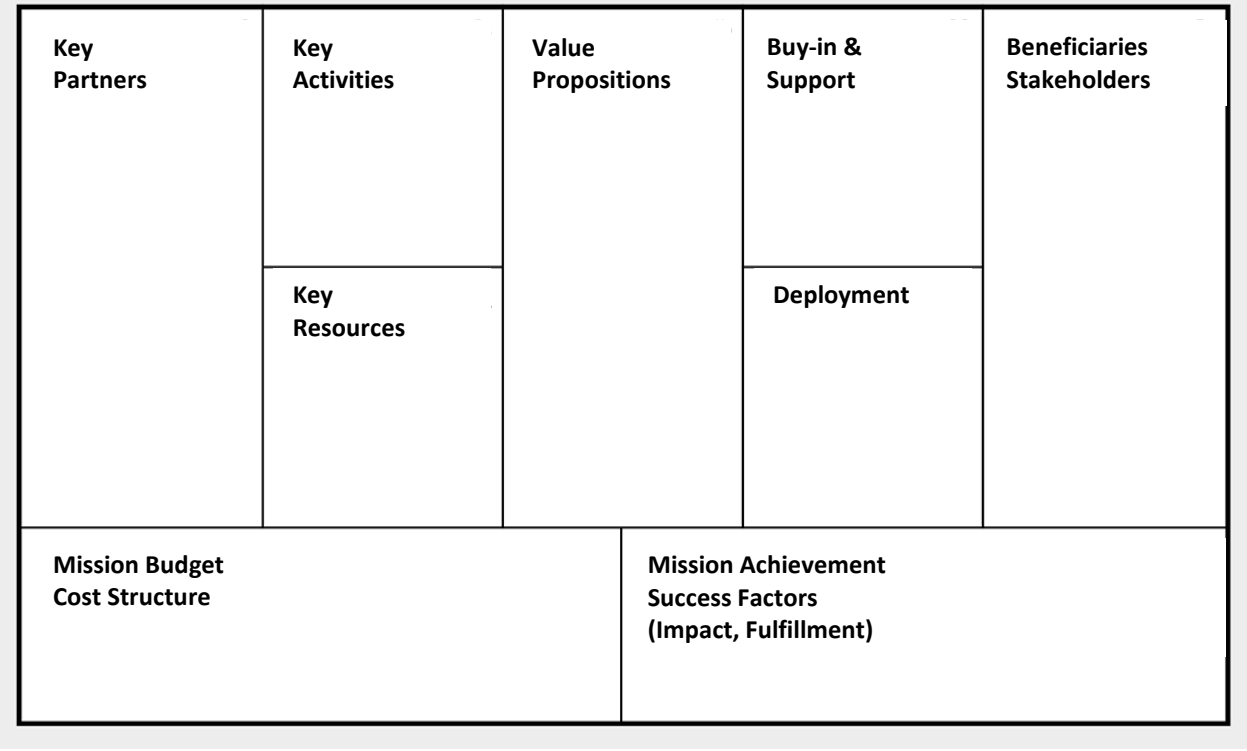
Business Model Canvas



The Business Model Canvas (BMC) is a strategic management and entrepreneurial tool that allows you to describe, design, challenge, invent, and pivot a business model.

- **Customer Segments** – The different groups of people you aim to reach and serve.
- **Value Propositions** – The bundle of products and services that create value for a specific customer segment.
- **Channels** – This block describes how you might communicate with and reach customer segments to deliver your value propositions.
- **Customer Relationships** – Customer relationships are established and maintained with each customer segment. This block describes the types of relationships you could establish with specific customer segments.
- **Revenue Streams** – Revenue streams result from value propositions successfully offered to customers. This block represents the cash a company generates from each customer segment – costs must be subtracted from revenues to create earnings that will help you sustain and scale your innovation.
- **Key Resources** – Key resources are the assets required to make your model work.
- **Key Activities** – These work by performing a number of key activities. This block describes the most important things you must do to make your model work.
- **Key Partnerships** –The network of suppliers and partners that make your model work.
- **Cost Structure** – The business model elements result in the cost structure.

Mission Model Canvas



The Mission Model Canvas (BMC) is a strategic management and entrepreneurial tool that allows you to describe, design, challenge, invent, and pivot a model that is focused on non-business enterprises.

- **Beneficiaries/Stakeholders** –The different groups of people you aim to reach and serve.
- **Value Propositions** – Describes what creates value for a specific stakeholder group.
- **Buy-in & Support** – How do you get support from each beneficiary/stakeholder group.
- **Deployment** – Describes what it will take to deploy your value for broad impact.
- **Success Factors** – How do you know when you succeed (mission accomplished)?
- **Key Resources** – Key resources are the assets required to make your model work.
- **Key Activities** – These work by performing a number of key activities. This block describes the most important things you must do to make your model work.
- **Key Partnerships** –Describes the network of suppliers and partners that make your model work.
- **Cost Structure** – The business model elements result in the cost structure.

Features vs. Value Propositions

Features	Weak Value Propositions	Strong Value Propositions
Fun & Engaging	Faster, Cheaper, Better	Relevant, Significant & Testable Product Benefits
Field-specific skill building	Getting students involved with an undergraduate publication	Increase number of good applicants for graduate schools

Customer Segments

Not Customer Segments	Vague Customer Segments	Clear Customer Segments
Buildings, Organizations	Broad Groups of People	Very Specific Job Titles, Very Specific Archetypes/Personas
Colleges	Faculty	Newly Hired, Tenure-track Engineering Faculty

VP-CS Ad Lib

Educational Innovation

_____

_____

_____

_____

_____

CS

_____

Customer Segment: Which people? Be specific!

VP

would "pay" to _____

Value Proposition: Solve this problem

in a way that

_____

Verb (reduces, increases, etc.)

_____

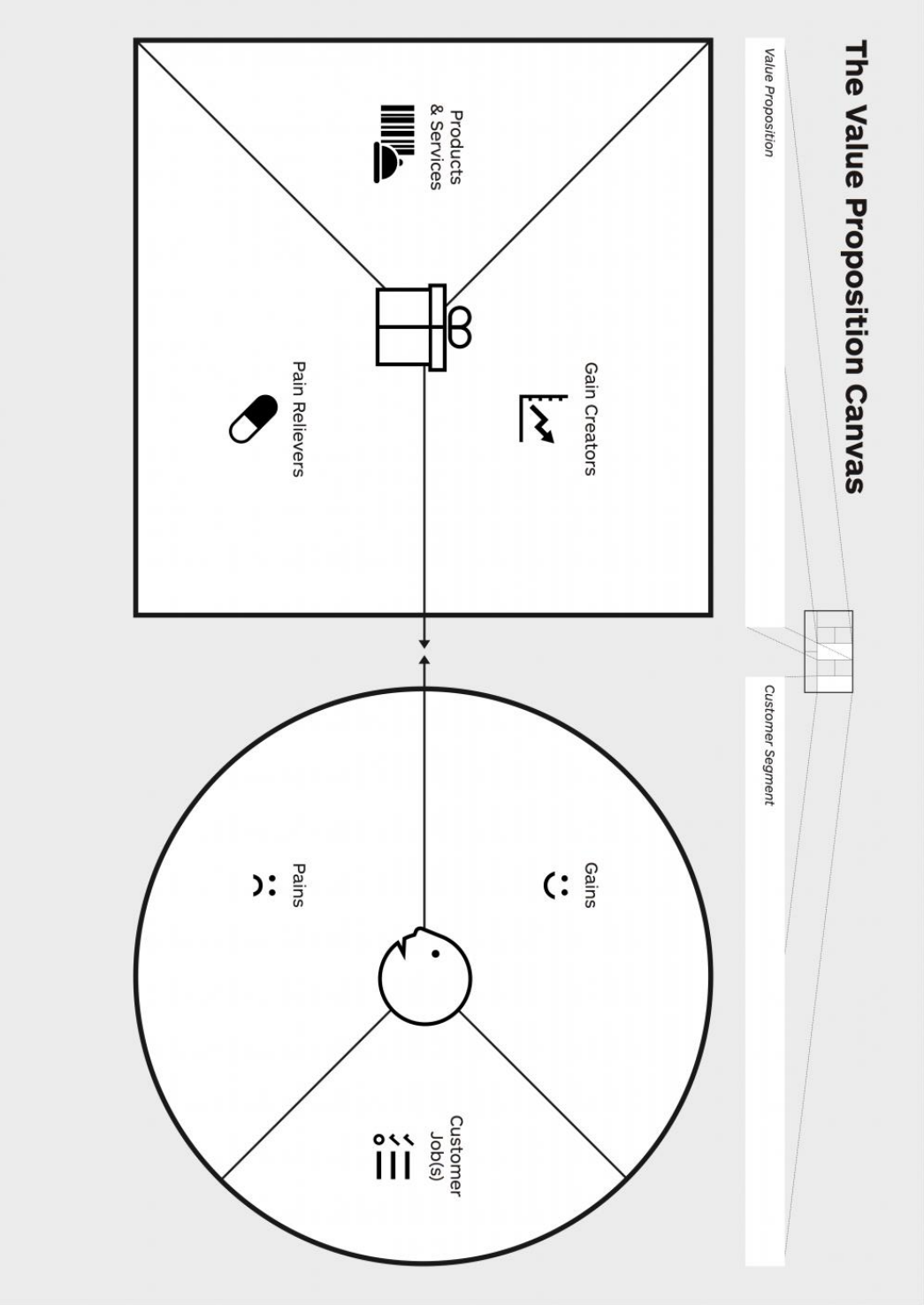
a specific Customer Pain or Gain

(unlike _____)

Extra Credit: How is it different from the competition?

Customer Segment Roles	Specific Customer Segment	Value Proposition
Beneficiary (An individual or group benefitting from an innovation)		
End User (The day-to-day users of a product or service Possibly have the least influence)		
Decision Maker (Those having the ultimate/final purchasing authority)		
Payer (Those that control the purchase of products or services)		
Influencer (recommender or skeptic) (Informants, opinion leaders with persuasive power)		

Value Proposition Canvas



Osterwalder, A., Pigneur, Y., Bernarda, G., & Smith, A. (2014). *Value proposition design: How to create products and services customers want*. John Wiley & Sons.

What is *Smart Start*?

ASEE's Smart Start is a two-week course for researchers and innovators who are passionate about taking their STEM education vision to the next level –but don't quite know how to get there. This course will give you a convenient, low-barrier introduction to making your research available to the public. When you accept the challenge, you will:

- Connect with leading experts in the fields of education and innovation, as well as like-minded peers.
- Learn how to develop an effective proof-of-concept, saving time and resources.
- Awaken your inner entrepreneur.
- Learn more about innovation programs like NSF I-Corps™ and how to get involved.

Is *Smart Start* for Us?

Pre-requisites

Smart Start is for faculty, program administrators, and graduate students interested in promoting learning in STEM at all levels and settings (e.g., formal and informal learning settings for P-12, undergraduate and graduate education, and in the STEM workforce).

Preference will be given to teams of two or three participants, with evidence supporting their project, product, or program, e.g., documented learning outcomes, and any proof of concept data (implementation results). All-student teams are welcome. No prior NSF funding is required.

Time commitment

Participants will conduct interviews with prospective users, learn how to plan for impact-driven research using a model that has proven successful with new innovations, and meet with course instructors to discuss progress and next steps. During the course, each participant will need to commit 10 hours per week to complete readings, videos, interviews and assignments.

Free course

Smart Start is offered free of charge thanks to the support of the National Science Foundation under grant DUE-1355431. Unlike I-Corps™ and I-Corps™ L, acceptance in Smart Start does not include supplemental funding; participants are responsible for covering any required expenses.

Upcoming *Smart Start* Courses

COURSE I: Online (February 17 – March 5, 2018)

- Application Period: October 25 – November 23, 2017
- Acceptance Notification: December 8, 2017
- Kick-off Workshop (Online): February 17, 2018, 9 AM – 5 PM ET
- Office Hours (Online): Two one-hour sessions (arranged with instructors)
- Closing Workshop (Online): March 5, 2018, 1 PM – 4 PM ET

COURSE II: Blended (March 17 – April 2, 2018)

- Application Period: November 22 – December 27, 2017
- Acceptance Notification: January 10, 2018
- Kick-off Workshop (National Harbor, MD): March 17, 2018, 9 AM – 5 PM ET
- Office Hours (Online): Two one-hour sessions (arranged with instructors)
- Closing Workshop (Online): April 2, 2018, 1 PM – 4 PM ET

How to Apply?

1. Prepare an online application that addresses the following:

    - Brief description of your STEM learning innovation (100-300 words)
    - Summary of evidence supporting innovation (e.g. documented learning outcomes) and any proof of concept data (implementation results).
    - List of (up to three) team members, including their connection with the innovation (e.g., principal investigator, graduate student researcher, etc.).
    - Confirmation of team members' willingness to commit to the two-week course, including attending all meetings and conducting customer discovery interviews.

    Preview application form at http://docs.asee.org/public/I-Corps-L/Smart-Start/2018/Smartstartapplicationform

2. Submit your application at: https://www.surveymonkey.com/r/2018smartstartapp

Founded in 1893, the **American Society for Engineering Education (ASEE)** is a global society of individual, institutional, and corporate members. ASEE seeks to be the pre-eminent authority on the education of engineering professionals by advancing innovation, excellence, and access at all levels of education.

ASEE engages with engineering faculty, business leaders, college and high school students, parents, and teachers to enhance the engineering workforce of the nation. We are the only professional society addressing opportunities and challenges spanning all engineering disciplines, working across the breadth of academic education, research, and public service.

- We support engineering education at the institutional level by linking engineering faculty and staff to their peers in other disciplines to create enhanced student learning and discovery.
- We support engineering education across institutions, by identifying opportunities to share proven and promising practices.
- We support engineering education locally, regionally, and nationally, by forging and reinforcing connection between academic engineering and business, industry, and government.

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