

# Bridging the Innovation Gap in Engineering Education

Presented by Steven P. Nichols, Ph.D., J.D.,  
P.E.

Professor of Mechanical Engineering  
Director, Chair of Free Enterprise  
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March 26, 2007

2007 International Mechanical  
Engineering Education Conference,  
Puerto Rico





- November 9, 2007
- ASME International Congress
- Sheraton Seattle Hotel
- <http://www.asme.org/events/ishow>



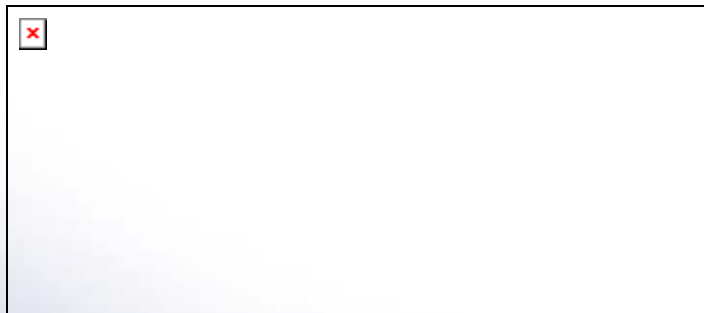
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# What is an Innovation Showcase and Who cares?

- What does this have to do with Mechanical Engineering Education?



# Question for a College of Engineering

- **What should an Engineering College do in Entrepreneurship?**
  - **For engineering students with special interests in entrepreneurship**
    - **Start-up and Small Companies (involving technology and technology development)**
    - **Product development and product realization in start-up, small, and large companies**
  - **For all engineering students**
    - **Students with interests in graduate study**
    - **Students with interest in small businesses**
    - **Students with interest in large companies**

# **Entrepreneurship**

**vs.**

## **Engineering Entrepreneurship**

- **Entrepreneurship in Business Schools refers to starting new ventures (referring to new companies—start-ups)**
- **Engineering Entrepreneurship need not refer to starting new ventures**
  - **One who creates, initiates, and successfully introduces innovative products and services**
  - **Necessary in large companies, small companies, old companies, new companies**

# Specific Competencies Required of Engineering Leaders

- **Technical excellence**
  - **Creativity**
  - **Innovation**
  - **Critical thinking**
  - **Skill in interpersonal interactions**
  - **Ability to define a vision**
  - **Attitude of seizing opportunities**
  - **Ability to evaluate risk in decision making**
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- **Note:**
    - **This is what we seek in engineering faculty.**

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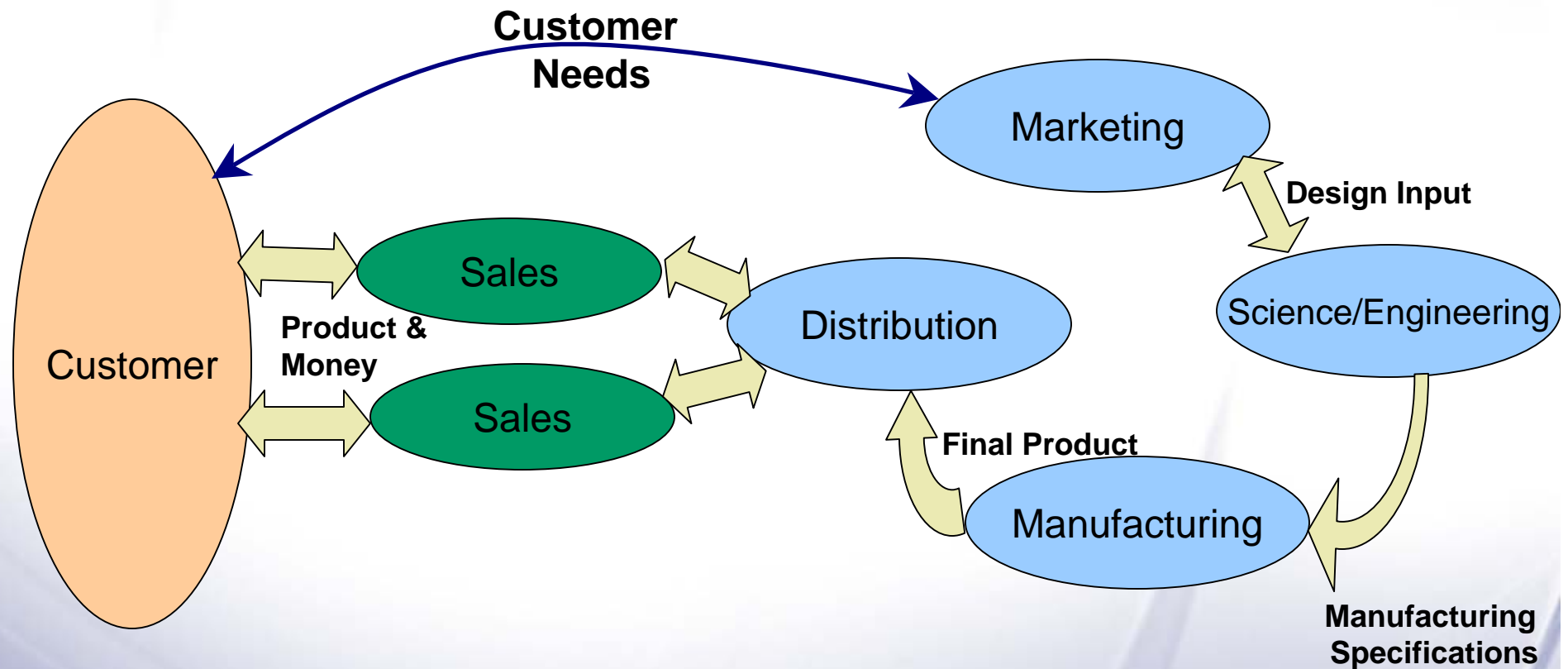
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**Example:  
Department of Mechanical Engineering  
UT Austin  
Strategic Plan**

**Mission:**

- **Educate the next generation of leaders in the Mechanical Engineering profession**
- **Create, explore, and develop innovations in engineering science and technology**
- **Provide beneficial service to the local, state, national, and international communities**

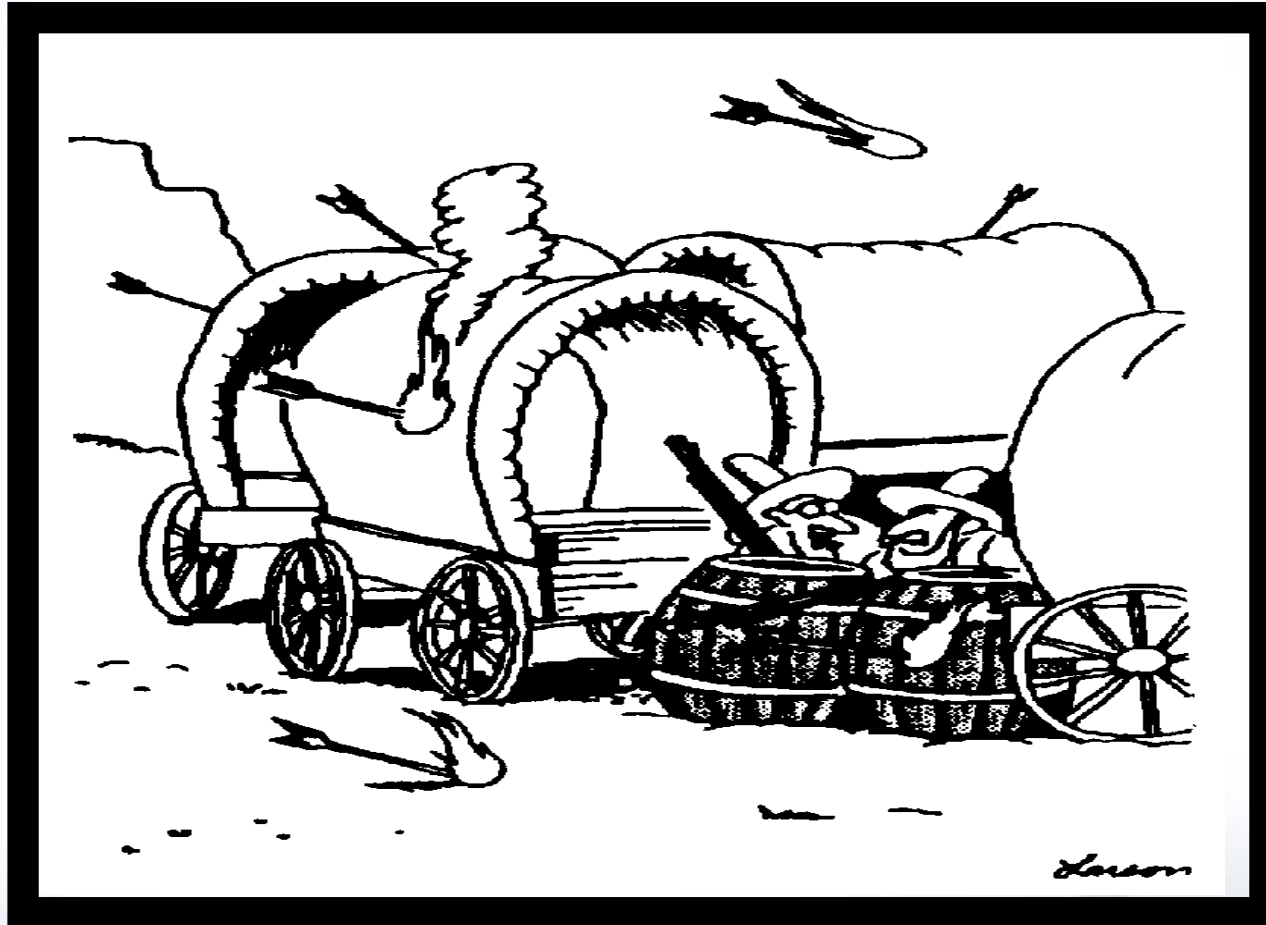
# Business Units Architecture (Mature Business => Steady State)



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# Innovation as a matter of survival



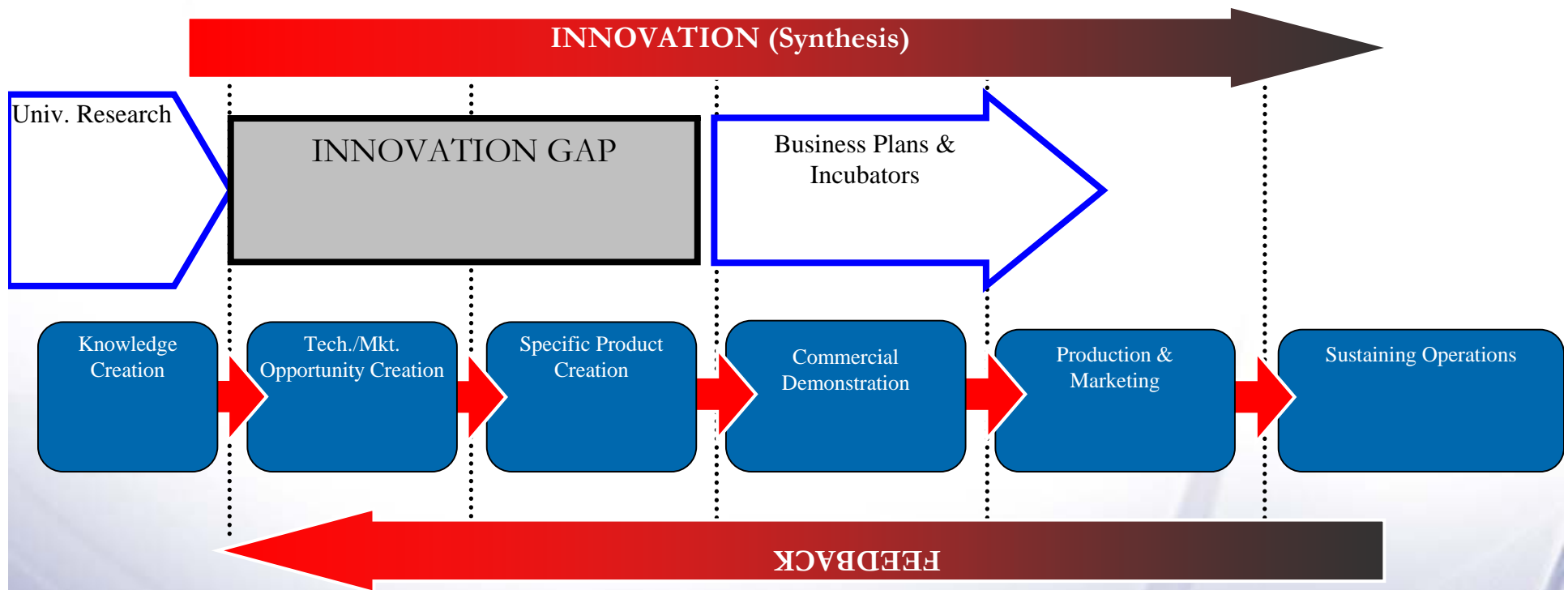
***“Hey! They're lighting their arrows . . .  
Can they DO that?”***

Source: The George Group

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# Identification of the Innovation Gap in Engineering Education (using the context of university research)

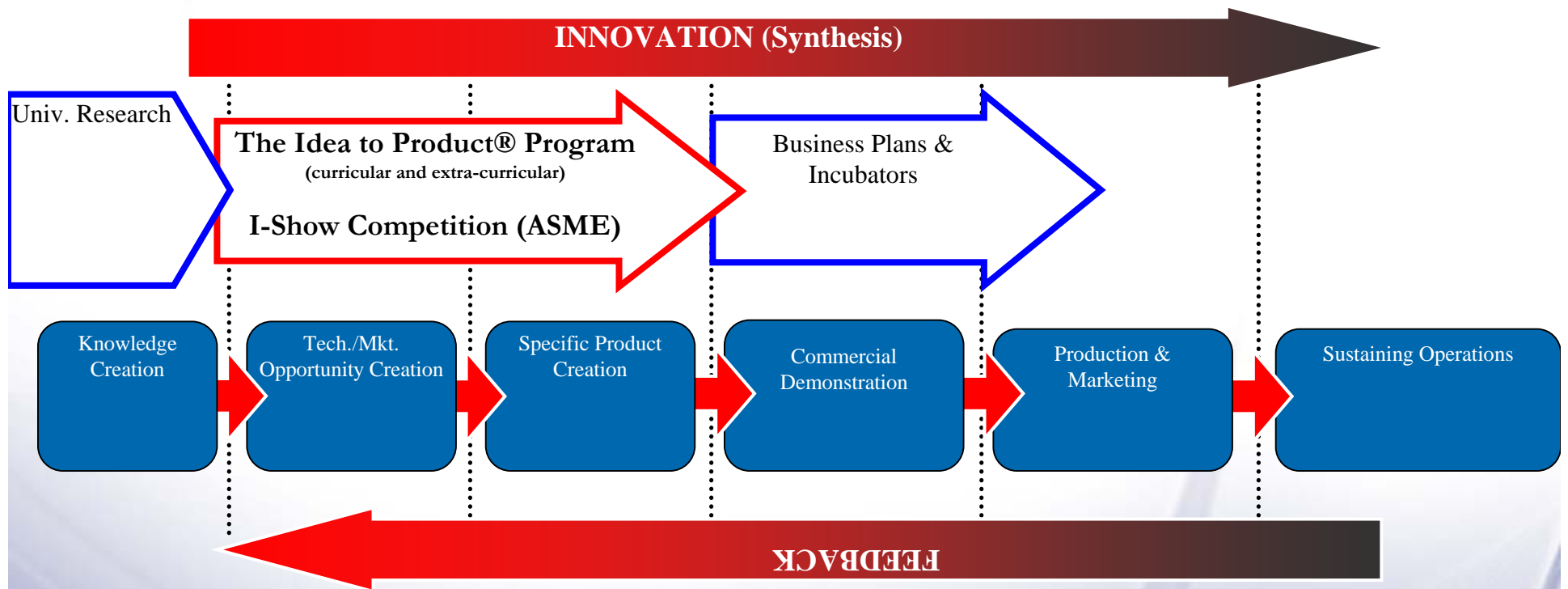


The Commercialization Process and Innovation Gap

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# Creation of "Idea to Product®" (An Education Program) and the I-Show Competition



Crossing the Innovation Gap: The I2P® and I-Show Programs

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# Innovation Showcase

## **Vision**

To be the premier nation-wide technology entrepreneurship showcase event to inspire engineers and future engineers to be product and corporate innovators.

## **Mission**

To collaborate with existing entrepreneurship and corporate innovation organizations and provide the services so engineers can move their ideas into world-class products and ventures.

# I-Show Organizers

**Liz Kisenwether, *Penn State***

**Steve Nichols, *UT Austin***

**Phil Weilerstein, *NCIIA***

**Howard Berkof, *Harvard Business School***

**ASME Staff: Reese Meisinger, Ben Johnston, Michelle Miller, Amy Geffen**



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# Innovation Showcase Questions

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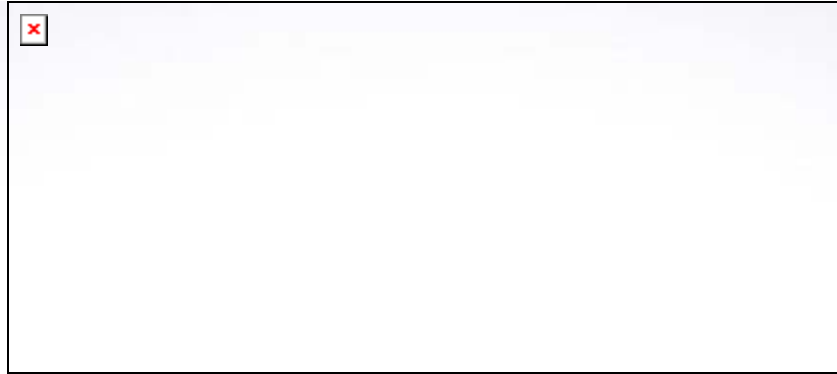
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