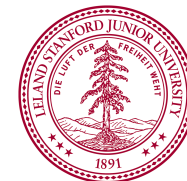


# ME310 Global Innovation Engineering

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Global network of designers, engineers and innovators challenging complex real world problems

2011-2012 Academic Year



**ME310 Global** is a part of the **Stanford School of Engineering** and **Stanford University**



# Our Neighbors

Note: Not all corporations shown here are affiliated with Stanford University. Map copyright by Google

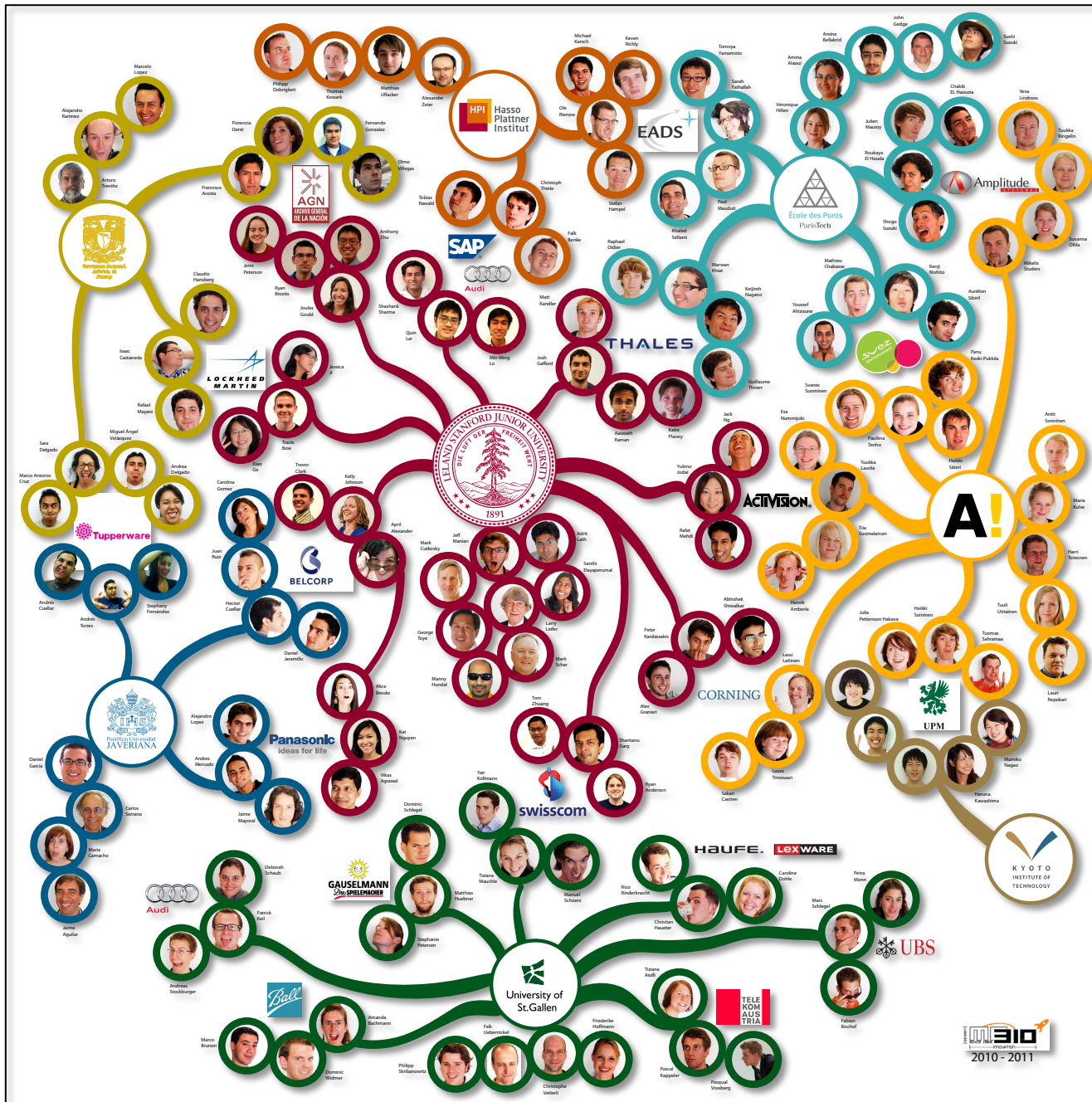




**ME310 Students** are the very best engineering and design students in the world! Each year about 100 masters-level students participate in ME310 Global including Stanford Engineering students and students from 8-10 off the top global engineering and design universities.

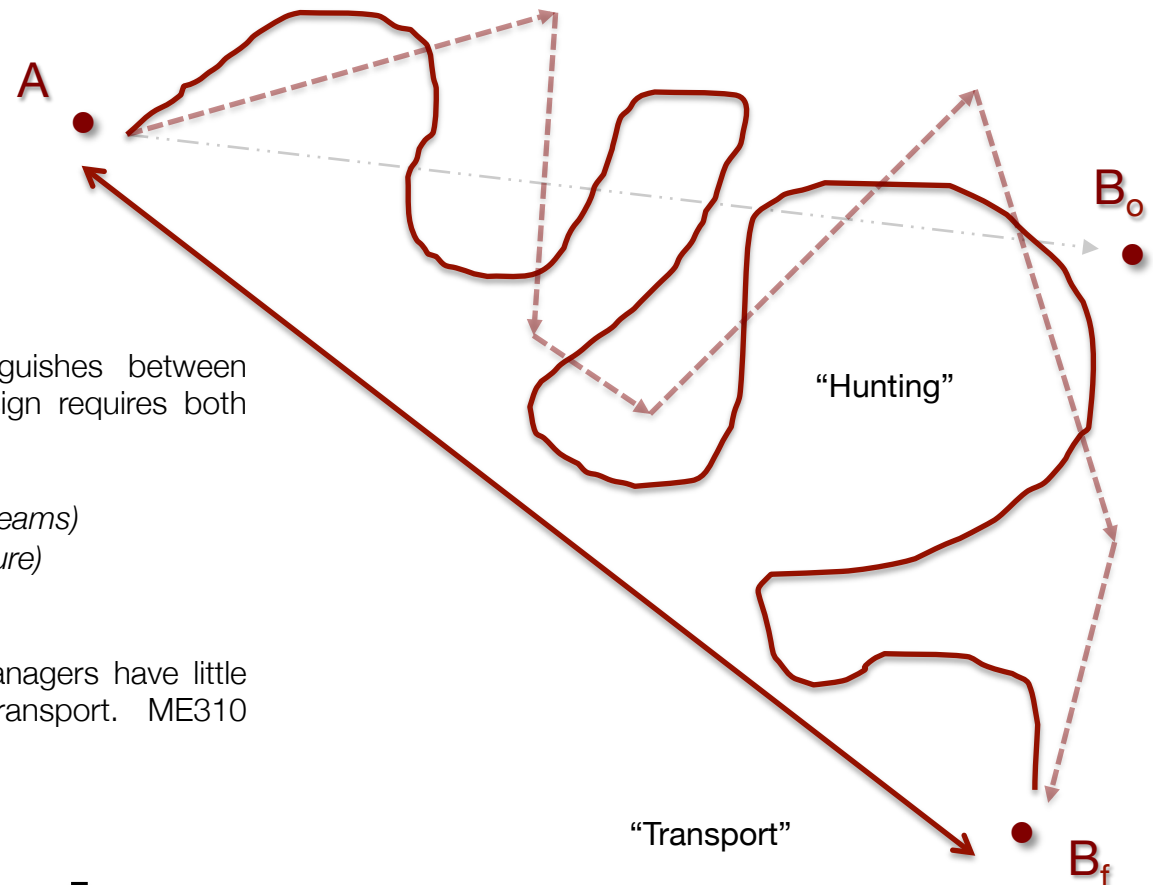
# Our **Students**

# Our Students



2010 - 2011

## ME310 Global Learning Concept



**The ME310 Learning Concept** distinguishes between “hunting” and “transport.” Successful design requires both behaviors. The rules:

- Never go hunting alone (*multi-capability teams*)
- Don't give up too early (*patience with failure*)
- Bring it home (*deliver results*)

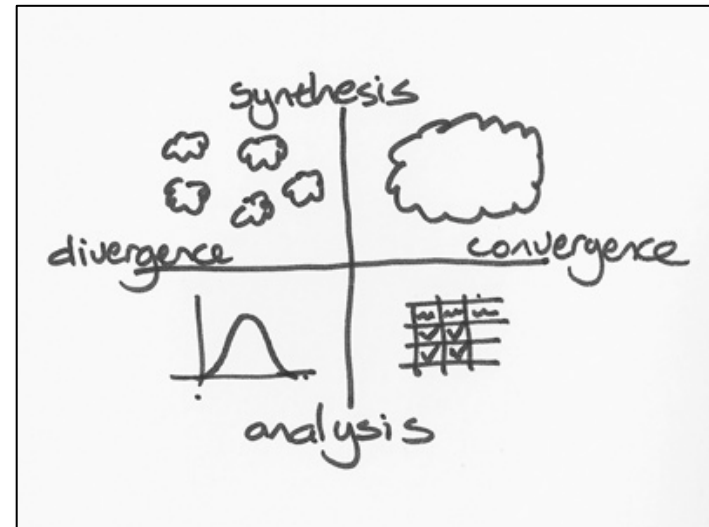
All too often, engineers and corporate managers have little tolerance for hunting and confuse it with transport. ME310 seeks to teach how to balance both.

## Our Approach

Ingold, T. (2007). *Lines: A Brief History* (1st ed.). Routledge.

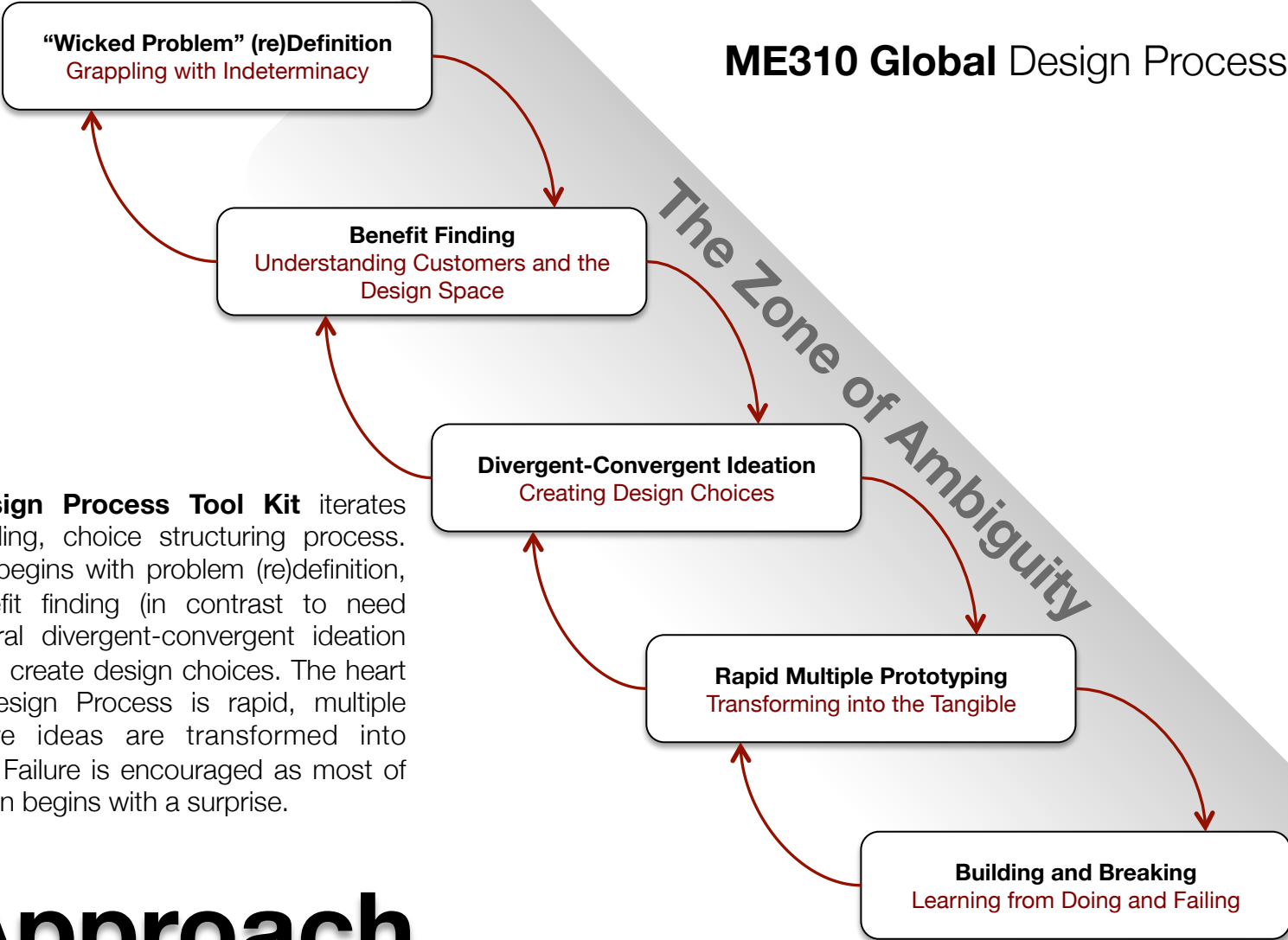
## ME310 Global Design Tool Kit

**The ME310 Design Tool Kit** helps designers make choices. *Divergence* thinking is the process that creates choices, while *Convergence* thinking seeks to make the best choices. Design thinking also requires the interaction between *Analysis* and *Synthesis*, which is a process of breaking problems apart and putting ideas together. Often, the very best design ideas come from the tension created by conflicting approaches to solving a problem.



# Our Approach

# ME310 Global Design Process

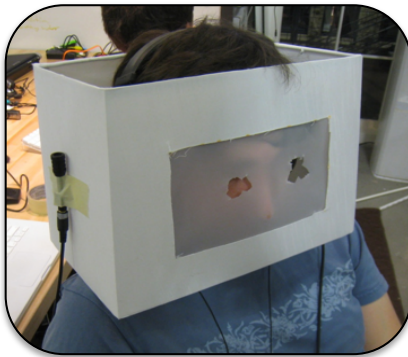


The ME310 Design Process Tool Kit iterates through a cascading, choice structuring process. The project work begins with problem (re)definition, followed by benefit finding (in contrast to need finding) and several divergent-convergent ideation exercises that help create design choices. The heart of the ME310 Design Process is rapid, multiple prototyping where ideas are transformed into tangible products. Failure is encouraged as most of the very best design begins with a surprise.

# Our Approach

## ME310 Global Prototyping

**The Swisscom Challenge:** Make videoconferencing more appealing and the preferred method of communicating



Experience Prototype  
"Guest-Host Paradigm"



Dark Horse Prototype  
"Vid Zeppelin"



Funky Prototype  
"Binaural Tilt"



Functional System Prototype  
"Shady View"

**Prototyping** is at the very heart of the ME310 design process because it is the most effective way to transform ideas into tangible products. Through iterative prototyping in many ways, broad problem statements are refined into concrete concepts that are eventually incorporated into a final, fully functional "reference model" prototype.

ME310 students develop a range of prototypes:

1. Experience Prototype
2. Critical Function Prototype
3. Dark Horse Prototype
4. Funky Prototype
5. Functional System Prototype
6. X is Finished Prototype
7. Reference Model Prototype

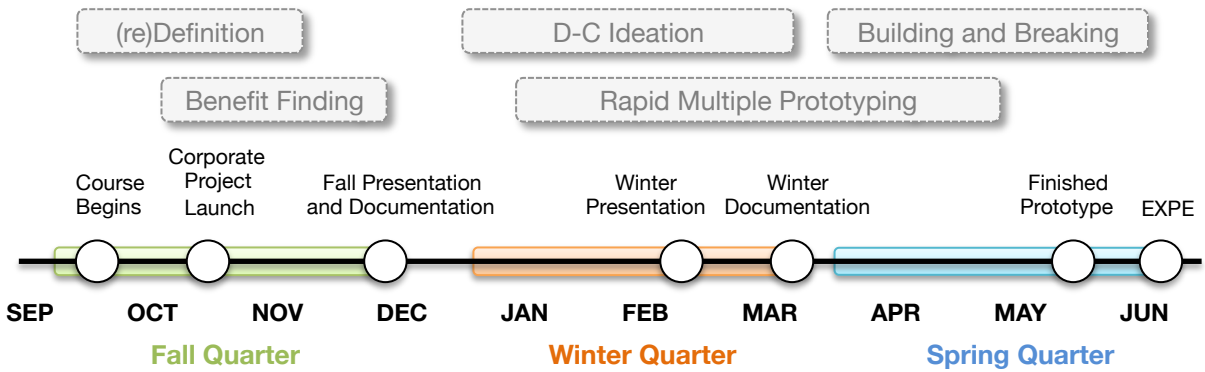


Reference Model Prototype  
Swisscom: VVER

## Our Approach

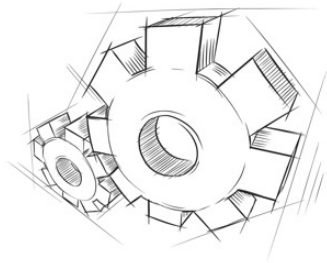


# ME310 Global Time Line



# Our Approach

## Contextual Frame



**Applied Technology**  
From a technology perspective

**Business Viability**  
From a commercial perspective



**Resource Environment**  
From a sustainable perspective



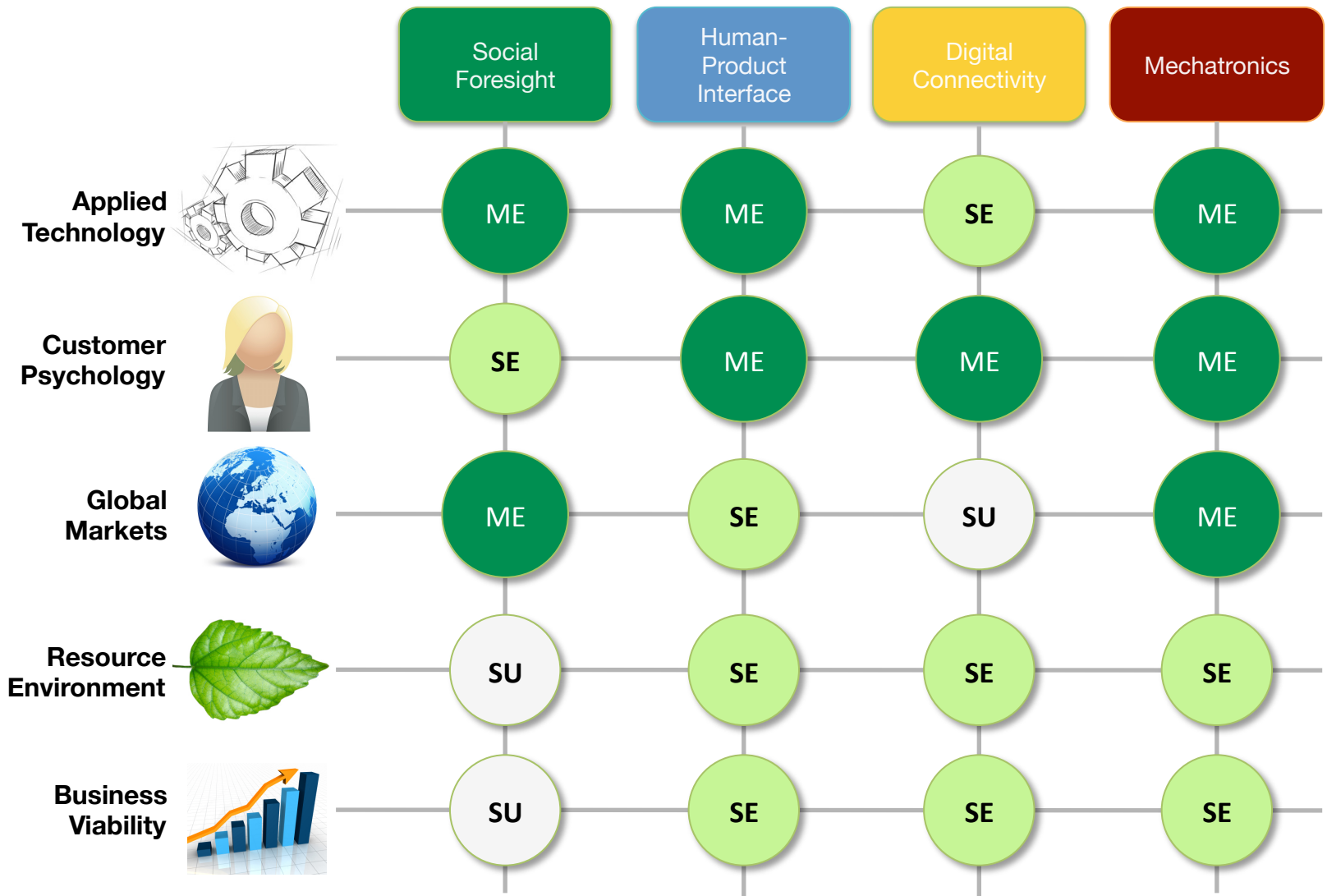
**Global Markets**  
From a multi-cultural perspective

**Customer Psychology**  
From a customer or consumer perspective



**Consumer** Frame

**Factors** influencing New Product Design



● ME310 Global competency   
 ● Stanford Engineering competency   
 ● Stanford University competency

# ME310 Global New Product Design Competencies



- **Problem re-definition** shapes the innovation space
- **Extensive interim reports** are shared quarterly
- **Video conferences** help keep collaboration alive bi-weekly
- **Customer and client market research** shapes the decision tree
- **Preliminary conceptual prototypes** test the problem formulation
- **Multiple Functional prototypes** test the solution path
- **Leadership briefings** give Face-to-Face synchronization quarterly
- **Stanford Design EXPERIENCE** in June 2012 wraps-up the course and projects
- **Corporate Partner Dinner** has special seating for supporters
- **Resumes and Contact information** for all ME310 Global students
- **Stanford Design Professors** are available at all times for informal counseling
- **Design Exchange Briefings** can be arranged for your Executive Group
  
- **Importantly**, you have a concrete gateway to **Stanford University**

## ME310 Global **Outcomes**

**ME310 Global Partners** work with a team of 6 to 8 students who are 100% dedicated to their innovation challenge over a period of 8 months. Partner involvement provides the reality check necessary for teams to improve their innovation abilities. Every team in ME310 collaborates with another team from a university outside the United States for the duration of the project. The partnership adds global diversity to the project teams and students are given the opportunity to experience true global collaboration, a skill required in today's connected world.



# ME310 Global Partners

# ME310 Global Innovation Engineering

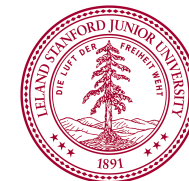
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ME310 Global Faculty Lead  
cutkosky@stanford.edu

**2011-2012 Academic Year**



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