

Engineering 012: Freshman Seminar:
Crossing the Consumer Chasm By Design

Technology has defined human life since our beginnings using stones, sticks, flints, and then agriculture and animal power, and today's hydrocarbon powered era managed by silicon-based information management. Some technologies spread broadly and rapidly throughout society - bread, cell phones, airline travel. Others blossom but disappear - Polaroid instant photography, Pony Express. But most never cross over to widespread adoption, personal jet packs, the Apple Newton, freeze dried ice cream. Crossing the Chasm is to transition from a clever idea to a product integrated into the daily lives of millions of people.

There are concepts which seem ready for acceptance: Space Tourism, the widely acclaimed but rarely seen Segway, and environmentally sensitive products including electric cars, energy independent housing and sustainable agriculture. Can we predict which ones will cross the chasm. How could we help them to?

The course focuses on the role of design in accommodating a technology to individuals, to human society. Crossing the chasm requires the broadest possible understanding of technical, sociological, psychological and aesthetic elements of the human experience. How can we learn from successes, failures and case studies of ideas whose outcome is yet to be determined, to understand, and to attack, the barriers to acceptance and adoption of a new capability? How do individuals specialized in engineering, in marketing, in human communications and behavior, in art, and in design, collaborate to build bridges between idea and application?

To experience the challenges of design and changing how people conduct their everyday lives, students form teams which identify a potential new product or capability, and then conceptualize the product, packaging and a business model to support them. Plotting a course across the chasm, we confront the technical, economic and societal barriers to realizing the benefits of innovative ideas and design.

For more information, Contact:

Professor Rick Fleeter, Division of Engineering
rick_fleeter@brown.edu

Crossing the Consumer Chasm

Course Outline / Syllabus

The Chasm concept and why it crossed the chasm

- Confluence of technology, societal needs and interests, politics and economics
 - Genesis of En 012:
 - Insight into what engineers do and some jobs engineering leads to
 - Expose tip of iceberg consumers see and the fundamentals
 - Engineering Design vs. Marketing?

 - Crossing the (Space) Chasm (why the course was originally the Space Chasm)
 - Crossing the Chasm reference; Geoffrey A. Moore
 - Why cross the chasm – so what

 - Why Cross the Chasm?
 - Realizing goals in the niche environment
 - “Missions”
 - an overview of class projects
 - examples of chasm crossers from many fields and markets
 - Success metric: how is crossing measured?
 - Popular access: users?
 - Market penetration - blue and green oceans

 - What constitutes The Chasm: obstacles to crossing it:
 - The internet as successful crosser
 - Cost, schedule and the concept of ROI
 - How much stuff costs - the concepts of NRE and RE
 - is ROI always determining?
 - the relationship of time to other resources
 - Technologies / Capabilities
 - the myth that technology is the chasm
 - Technology hurdles
 - Complexity, cost etc.
 - examine some tech crossers:
 - did technology enable them?
 - Engineering and design as enablers
 - Imagination
 - Killer apps
 - Politics
 - do incentives cross chasms? Solar Energy
 - To what extent can government plot a roadmap
 - The Human Factor
 - resistance to changing habits
 - resistance to learning
 - relevance to “every day”
 - wallet and clock share
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- How to surmount obstacles to crossing
 - Promising technologies
 - Nano, robotics, materials etc.
 - distributed systems
 - Case studies
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- Reality Imitates Art:
- The role of media, art, fiction, in setting goals and preparing markets
 - we use utube videos, movie clips, sci-fi extracts to examine if imaginary ideas motivate innovation and the appetite for innovations
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- International aspects
 - is the chasm a useful concept in non-US settings
 - Europe and other 1st world
 - 2nd and third world
 - competition as motive for innovation and chasm crossing

**Engineering 0120A: Freshman Seminar:
Crossing the Consumer Chasm By Design**
Banner Summary

Technologies have shaped human life since tools were sticks and flints to today's hydrocarbon powered, silicon managed era. Some spread throughout society; bread, cell phones, airlines, but fail or occupy small niches; virtual reality, bicycle commuting, renewable energy.

Space Tourism, the Segway, electric cars: Can we predict which ones will cross the chasm to broad application? Can we help them to by combining design, engineering, marketing, communications, education, art, and business strategies?

Student teams identify potential new products, conceptualize, package, and define their business mode. By plotting their course across the chasm, we confront the cross-disciplinary barriers to realizing benefits from technology.