SP.723: D-Lab III: Disseminating Innovations for the Common Good
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Lecture Notes

Session 2, 2/8/07

- $100K Competition presentation – Today, a visitor, Joost Bonsen, who co-teaches a joint Media Arts / Sloan course "Development Entrepreneurship" and who has previously been one of those running this competition, is going to present on the this competition and also compare it for us to the IDEAS Competition
    - Historically the MIT $100K (which used to be the $50K but an additional $50K in prize money was just added last year) focused more on high-end technology Western world start-ups
    - This year, there's an entirely new, separate track of the competition focused specifically on the rest of the world development entrepreneurship start-ups
    - Campbell's (foods) and Gillette (razors) are examples of enormous firms for which their main technology was made possible by MIT alumni. Akamai <ask.com> is another firm begun at MIT
    - The $100K Competition hosts a dinner tonight. You should all try to go to this. If you can't make it, then you should be sure to discuss what took place with classmates who can attend.
    - Tonight's keynote speaker at the dinner was able to use a camera that could do three-dimensional imaging and market it for dentists, to create models of teeth that could replace plaster casts. This innovation was bought by 3M last year.
    - The Executive Summary for your entry in the $100K will be due in a few weeks: this document requires only five, very focused paragraphs explaining the nature of your plan/idea
    - Sponsors include venture capital funds, law firms, foundations, individual schools of MIT, and individual donors
    - There's also an MIT class similar to this one, called "Developmental Entrepreneurship," which I teach with Sandy Pentland.
    - Historically, there was an MIT class called "Design that Matters." The "D-Lab" set of courses are partly an outgrowth of the "Design that Matters" class.
    - The difference between this "D-Lab" and the "Developmental Entrepreneurship" course is analogous to the difference between the IDEAS competition and the $100K
        - The IDEAS Competition asks whether you can come up with an innovation that can help an underserved community. Who is your community partner? How will this innovation lead to development? Is it useful? Does it work? Do people want it?
        - The $100K Competition is more a matter of the organization that surrounds the innovation: is it well planned and put together?

1

- Further presentations on the IDEAS Competition and the Deshpande Competition will happen next week.

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- Reading from the first chapter, *Diffusion of Innovations*, 5th Edition, by Everett Rogers:
  - Where does our work fit in?
    - S-shaped diffusion
    - We might reach two villages in Zambia, or we might reach the entire world
    - Outreach over time
  - Many core concepts that we'll be utilizing are related to those in the first chapters by Everett Rogers
  - Rogers's definition of *diffusion* has four main elements:
    - An innovation
    - Communicated through certain channels
    - Over time
    - Among members of a social system
  - This concept of diffusion relates to social marketing
    - Concepts deriving from sociology, social theory, and communications theory are central
    - Think about campaigns of social responsibility:
      - "Cigarettes will kill you"
      - "Remember, only you can prevent forest fires"
    - These campaigns are products of a huge field of research and practice relating to behavioral change, and they have been much studied and implemented by social entrepreneurs or people who want to work to create social, environmental, or educational changes in human behavior
  - What is an *innovation*?
    - One definition is that it is an idea, practice, or object that is perceived as new by an individual or other unit of adoption
    - Rogers distinguishes between innovations and technology,
    - He also recognizes that technology is a combination of hardware and software.
  - It's absolutely critical that not only does a community adopt an innovation, but also that a technology is designed from the end-user point-of-view
    - Therefore, you need to be prepared to fully take into consideration the human interface side, the socio-cultural side, as you design and implement your technology. You might need local informants, you might want an anthropologist on your team. You might do a social system evaluation, a public health impact study or a consumer choice survey.

- The socio-cultural aspect played a central role in the lack of adoption of water boiling in Peru, as we saw in the first case example in the first chapter
- The technological solution which does not account for the human interface may be ineffective
  - Communication channels
    - Diffusion involves:
      - An innovation (and its developers)
      - An end user that has knowledge of the innovation
      - An end user that does not yet have knowledge of the innovation
      - A two-way communication channel connecting the innovation (and its developers) with the end user
      - The iterative process implied in this model is essential to on-going improvement and acceptance of the evolving innovation
    - Communication channels are very important – modifications to innovations may occur in unstructured ways between friends or in structured ways by field assessments of the use of innovations
    - Examples of the way innovations diffuse in an unstructured way include iPods, G-mail, Facebook.
    - However, in practice, structured communications between innovators and end users may also occur, and these have direct relevance to the evolution of an innovation that you may be developing.
    - The developing world offers some exciting challenges for this model of developing an innovation.
    - Dissemination of knowledge generally happens either via mass communication, or interpersonally
      - In the developing world, dissemination of knowledge often occurs interpersonally, perhaps partly because of lack of access such a variety of types of mass media
      - In many rural areas of the developing world, mass advertising just doesn't have the same effect, because people don't have the same level of access or even any access to TV or radio.
    - There are three phases that can be used to model the dissemination of innovation. Graph shows percentage of adopters over time, showing the curve of early adopters, the take-off period, and the late adopters
    - An example is household water treatment in Cambodia. While there are still a very small percentage of end users right now (the phase of early adopters), 5 years ago, no one in Cambodia used ceramic water filters, now the coverage in the country is 4% and the take-off phase may be imminent.
  - What does diffusion research say about social systems?

- Most people don't evaluate innovations on the basis of scientific studies
  - Most people don't evaluate them in a rational way, but rather in a subjective manner that has to do with interpersonal communication
- Dvorak keyboard case study
  - Which system do people prefer? How do you measure that? Do people switch over individually, or based on interpersonal communications?
  - Who is being targeted? Mass companies like IBM or Mac? Students? Others?
  - Why is this sort of innovation so hard to disseminate? Lots of people have to all adopt it at the same time.
  - People who learn Dvorak keyboards have to be kind of bilingual, so that they can still use Qwerty
  - Similar problems come up with keyboards in other countries, for different character sets
- What are the five characteristics of innovations that explain their different rates of adoption?
  - Trialability
    - Such as test driving a car
    - Perfume test scents, or mini toothpaste promotions
    - You might not get the chance to really see the benefits or drawbacks of using a product day in and day out, but you can kind of get one foot in the door by trying it once
  - Observability
  - Compatibility
  - Relative advantage
    - Is it really better than the old technology? How much better?
  - Complexity
- Modeling the behavior of five adopter categories:
  - Innovators
  - Early adopters
  - Early majority adopters
  - Late majority adopters
  - Laggards
- Rate of adoption: A measure of the length of time required for a certain percentage of the members of a system to adopt an innovation
  - Are people regular adopters, or irregular ones? How often are they using the innovation?
- Social acceptance of innovations is not transparent. It requires understanding human behavior.
  - Some innovations are more readily adoptable than others. Why?
  - Those innovations that appear to be most beneficial may be hardest to diffuse. Called "preventive" innovations. Example: innovations

that are good for your health, such as getting people to stop smoking, are often some of the hardest to get across to people.

- Assignments for next week:
    - Read Chapter Two in Rogers
    - Read the collection of proposals on class MIT Server from last year's class
    - Write up your pitch and turn it in to the instructor next week
    - We'll present our project pitches again next week, in a more organized manner than we did the first time. You'll be strictly held to just 1 minute.