Syllabus: Technology Entrepreneurship
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Technology, and in recent decades especially the Internet has been and will be changing our lives. Recently founded businesses are the agents of change. The course will describe and analyze the challenges facing these new businesses and ways to address them. It will integrate themes from strategy, marketing and finance to better understand the main issues facing the technology entrepreneur.

The course will consist of lectures by the instructor and by guest speakers as well as case study discussions. About half the course will focus on financial technology (Fin Tech). About half the class meetings will consist of case discussions. These will require thorough preparation and the submission of written reports. At the course’s midterm each student will make a three minute presentation on a brilliant tech idea. At the end of the course the students will write and present a business and its model for a tech venture. The grade will be based on the midterm and final projects, class participation and the reports on the cases.

The course will consist of three modules:

Module I: The business model
- What’s the product and what need it fulfills;
- How will the customers find out and use the product;
- Who will pay for it and how much; what’s the likely profit;
- What’s business ecology; who are the competitors and what are their likely actions

Module II: Platforms, Multiple-Side Markets, Relation with Brick-and-Mortar
- Network effects
- Reputation and credibility
- e-Commerce

Module III: Financial Technology
- Payment systems
- Bundling services with a payment system
- Bitcoin, Blockchains and the business ecology emerging around them
- Crowd funding

General Comments on tech entrepreneurship

Having thought of a product or a service, probably the next thing an entrepreneur needs to think about is fixed vs marginal cost of product. In tech, it’s usually
relatively high fixed cost, low marginal cost. However, marginal cost can get higher if human involvement is required (sales, tech support) or bricks & mortar is involved. As the user community increases, the unit cost of sales and tech support decreases because users recommend the product to potential users and facilitate product adoption. This is a network effect.

The network effect can be even more pertinent on the user’s side. A single telephone is worthless. The telephone becomes valuable only if there are multiple users. Think of products for which the value of a membership in a user community increases with the community’s size. Sometimes the network benefits are hidden, e.g., Google’s search algorithm relies on choices made in earlier searches by other searchers. The more such searches have been, by more people, the better the algorithm. (The same principle is central to Netflix’s recommendation system.)

Dynamics: the possibility of entry and disruption. Attractive to the entrepreneur, a threat to the incumbent who may well be yesterday’s entrepreneur. The higher the product’s marginal cost the more costly is the entry. Ditto for the network effects – it’s difficult to dislodge an incumbent whose product entails network effects and enjoys a large user community.

A relevant, often central consideration: total addressable market (TAM) – with internet-facilitated products it may well be the whole world.

The rewards of product leadership are enormous, and the competition to be a product leader is fierce.

Initial cost to make a software product are often low, which allows many people with many ideas to do just that. Therefore many new prototypes and even products compete for the attention of financiers and product users. Due to scarcity of attention it may well be that the first to scale up rather than the first mover who has the big advantage.

What protects the incumbent? Network effects; high switching costs; high entry costs, e.g., through the involvement of brick-and-mortar.

Examples:

- Network effect: Google’s search engine which relies on its data base of past searches and resulting choices; Social media (e.g., Facebook) – the more uses the better the quality of the community.
- High switching costs: Intuit’s tax preparation software, because one’s past returns and personal information are important and cumbersome and need not be re-entered again and again. Open Table, because restaurants adopt its system to manage their reservations and even some of the payments. Once adopted, it’s costly to replace the system.
• Involvement of brick-and-mortar: The establishment of Amazon’s warehouses was costly, but enabled low marginal cost of the products. Beepi (used car trading) with its big infrastructure of inspection, repair, polishing and delivery.

These themes will emerge time and again in our discussions.

Student Workload

The students will submit written case discussions before each case. These can be done in groups of no more than four students each and will be graded on a pass/fail basis.

Midterm in the course, each student will prepare a three minute presentation on a brilliant tech idea, explaining the concept and its commercial viability. Each student will submit 2-page write-ups describing the ideas. Defending and promoting it.

In our final meeting, each student group (consisting of no more than four students) will present an idea for a tech enterprise with the business model that goes with it. A written description will be submitted before the presentation.

Grading will be based on class participation (10%), written case discussions (30%), midterm project (20%) and final project (40%).