



## Charles River Distinguished Speaker and Doctoral Student Conference on Technology and Innovation

Harvard Business School – Boston University SMG –  
MIT Sloan School

Thursday 15<sup>th</sup> May 2014, 1:00 pm – 6:00 pm, HBS Hawes 102

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### PROGRAM

1:00 pm – 2:15 pm

#### 2014 CHARLES RIVER DISTINGUISHED SPEAKER

**Shane Greenstein**, Kellogg School of Management,  
Northwestern University.

*Innovation from the Edges*

Why did the deployment of the commercial Internet have a large economic impact? This book looks back on the two-decade history of the commercial Internet. It focuses on the lessons that come from taking a long perspective. *Innovation from the Edges* summarizes the book's themes. The phrase has three different interpretations – innovation from a dispersed set of sources, innovation from new entrants at the periphery of an industry, and innovation from outside the common expectations about the direction of technical change. Each interpretation illustrates a central theme of the book's explanation for how the Internet arose and restructured markets during its deployment, focusing particularly on the experience of 1980s and 1990s. In each episode the book asks about the factors that encouraged or discouraged innovation from the edges. This also frames analysis of why the emergence of the commercial Internet had a large economic impact on the structure of the communications market.

2:15 pm – 2:30 pm

Break

2:30 pm – 3:30 pm

## DOCTORAL STUDENT RESEARCH I

Discussants: **Christian Catalini** and **Neil Thompson** (MIT Sloan)

**Marketa Sonkova** (BU Management)

*Strategic Allocation of Human Capital: Appointments in Bank Subsidiaries*

This study examines how multinational companies (MNCs) use strategic human capital appointments in the subsidiary executive team to manage tension between effective monitoring and local knowledge utilization when faced with subsidiary environment uncertainty. Building on the widely accepted assumption that executives' expertise, abilities, and knowledge influence organizational outcomes, I exploit unique, self-collected data on the demographic and experiential characteristics of executives from 75 subsidiaries belonging to 34 U.S. and European banks during 2005-2012 to develop an understanding of organizational strategies for subsidiary executive appointments. I find that higher levels of uncertainty are associated with a reduced preference for local executives in monitoring and control-oriented functional roles, which is counterbalanced by a greater preference for local executives in implementation-oriented functional roles. The results imply that MNCs do not exercise one-size-fits all appointment strategies in their subsidiaries, but instead invoke a more nuanced appointment process.

**Frank Nagle** (HBS)

*Public Digital Goods and Firm Productivity.*

As public digital goods become more freely available and more frequently used as key inputs by firms, understanding the impact they have on productivity becomes of critical importance. In this paper, I measure the impact of one such good, open source software (OSS), on firm productivity. I find a positive and significant return to the usage of OSS, such that a 1% increase in the amount of OSS used by a firm leads to a 0.18% increase in value-added productivity. I address the endogeneity issues inherent in productivity studies by using an instrumental variable approach. Further, I use a matching estimation to provide additional support for my primary finding. My findings fill an important gap in the existing literature on the returns to IT investment, which currently does not properly account for non-pecuniary digital inputs.

3:30 pm – 3:45 pm

Break

3:45 pm – 4:45 pm

## DOCTORAL STUDENT RESEARCH II

Discussants: **Pian Shu** and **Rory McDonald** (HBS)

**Eunhee Sohn** (MIT Sloan)

*The Endogeneity of Academic Science to Local Industrial R&D: Evidence From the Agricultural Biotechnology Industry.*

This paper provides the first empirical testing of the underexplored “reverse” direction of local geographic spillovers: how local industry

R&D can affect the rate and direction of academic research in the regional innovation system. I argue that local industrial R&D has a greater positive impact upon the research productivity of nearby universities if the university has strong “boundary-spanning capacity”, which I define as the institutional infrastructure and norms that facilitate and incentivize the bilateral transaction between industry and academia. I find support for my argument in the setting of agricultural biotechnology industry, showing that after the agricultural incumbents’ entry into plant biotechnology R&D, colocated universities which had stronger boundary spanning capacity experienced a greater boost in the plant-biotechnology related publication output compared to other universities nearby.

**Jax Kirtley** (BU Management)

*How Entrepreneurial Firms in Nascent Technology Industries Navigate Strategic Change*

Innovative entrepreneurial firms looking to introduce disruptive or industry creating technologies face a dilemma. On the one hand, they need to be strategically flexible, able to adapt to the changing uncertainties of new technology and market development to successfully enter at the leading edge of the technology life cycle. At the same time, these weak and under-resourced firms need continuity to build their organization, reputation, and the stable network ties necessary to acquire and efficiently use their limited resources. Existing theories tend to assume that entrepreneurial firms are adaptive, but what is not well understood is how entrepreneurial firms adapt in a context that favors continuity. This research uses a longitudinal field study to examine how entrepreneurial firms developing novel high technology hardware products in nascent energy and cleantech industries adapt their strategies to changing circumstances in view of the vision and value proposition that they were founded upon.

4:45 pm – 5:00 pm      Break

5:00 pm – 6:00 pm      **DOCTORAL STUDENT RESEARCH III**

Discussants: **Iain Cockburn** and **Jeff Furman** (BU Management)

**Abhishek Nagaraj** (MIT Sloan)

*The Impact of Public Data on Peer Production : Evidence from the US Census TIGER Mapping Project*

What is the impact of public investments in knowledge goods on user-based innovation? I analyze the development of the US Census Bureau TIGER mapping project, a 8-year long public effort that made available a complete digital map of the United States for reuse. I study the impact of TIGER on OpenStreetMap, a Wikipedia-style community contributed mapping project widely used in many applications. As a result of an oversight, when TIGER was first used in OpenStreetMap about 60% of US counties received the newly

surveyed data, while others received outdated and incomplete data. By comparing regions that were and were not affected by TIGER, I find that the availability of TIGER maps significantly hampered both the development of the US OpenStreetMap community, map "quality" and downstream use in commercial navigation applications. These findings have implications for scholars of user-based innovation, crowdsourcing and digitization.

**Haris Tabakovic** (HBS)

*Firms, Patent Trolls and Patent Assertion*

“Patent trolls” - opaque entities that acquire, hold and assert patents, but do not develop or commercialize any technology themselves have a disproportionate effect on firms and innovation. This paper seeks to uncover: 1) how firms adapt their technological search patterns and 2) how firms organize their R&D after being exposed to "patent troll" activity using patent metadata and IV analysis.

6:00 pm – 7:00 pm      Reception