

21st Century Innovation Systems for the US and Japan

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Overview

- Professors Feller and Kondo gave very broad and rich talks
- Good pairing
- Between them they covered the history and breadth of university/industry relations
- Would love to hear their views on the other's talk and to see future Feller/Kondo collaboration

Issues from Kondo Presentation

- Many parallels between US and Japanese institutions mentioned by Prof. Kondo
 - University of Tokyo School of Engineering/Land Grant Universities in the US
 - Riken(Rikoh)/Radio Corporation of America (RCA)
 - National University Agencies/Charter Universities in US
 - Joint Research Centers at Universities/ Industry presence at major US universities
 - The diversity of industries served at Yokohama National University and Penn State University

University Licensing: Japan-US Comparison

- Japan's experience mirrors the US experience over Bayh-Dole's first 20 years
- In U.S., growth in R&D preceded large expansion in University patent applications came
- Licensing income increase came after growth in licensing contracts
- Large spin-offs from academia took longest to develop and were preceded by deepening of university-industry mutual understanding

Bayh-Dole Results

- Change took time.
- Increase in patents granted to universities (1982—375; 1990—1184; 1998—3151; 2003—3450: New patents filed—7203).
- University royalties from licensing (1991--\$130 million; 1999--\$675 million; 2003—\$1.033 billion).
- Startup companies formed with university patents (1994—175; 1999—275; 2002—370; 2003—348).

Issues from Feller Presentation

- Agree that 25 years is proper period of review since in 1980 both Bayh-Dole and Stevenson Wydler Innovation Act passed
- Agree with content of Feller speech
- Relationships and framework of university-industry cooperation are still evolving
- Large number of second-tier universities now trying to participate
- International firms' participation increasing

Industry Perspective

- Feller talk was written from university point of view
- If done from industry point of view, National Cooperative Research Act as much a change agent as Bayh-Dole
 - This anti-trust reform preceded joint research in industry, formation of high technology small businesses, and subsequent decline of large corporate labs

Industry-University Conflict

- Conflict currently a problem but probably short-term because market forces are at work. Great competition among universities for relations with top companies.
- Universities who are rigid in patent matters can lose not only relations with companies but also labs, professors or students to competitors.
- Model ground rules for collaborations will evolve quickly and become norms for efficient markets.
- National Academies involved in related software development.

Small vs. Large Companies

- It is important to realize that successful university dealings with small companies very different from dealings with multinationals
- Many university innovations too small for established companies
- Nurturing an entrepreneur is closely related to traditional university role as nurturer of students
- Universities becoming major force in local economic development and politics

Large Companies

- Internet and IT advances are dramatically shortening product cycle times and revolutionizing the way businesses deal with those outside the company
- Universities currently not structured to move beyond the 1.7 percent of industrial research they now perform.
- Working with large firms will increasingly require major shifts in university culture
- Large firms will need just-in-time suppliers of research ideas, who understand modern business practices.
- Eventually, universities will be involved in virtual companies and company supply chain networks
- Government agencies dealing with industry face analogous challenges

Preservation of University Culture

- Quality of research universities is highly dependent on federal funding. Increased university funding by industry will come, but will take time.
- Concerns of Professors Feller and Kondo about potential adverse effects on university culture are very real.
- Universities have a lot to gain from best industry practices such as Six Sigma.
- In my opinion, the good from closer university-industry cooperation will greatly outweigh the bad.