Complementary Products and Modular Innovation in Internet Telephony

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Research Project

- **A Case Study on Internet Telephony :**
  - How will Internet Telephony affect Existing Firms, as well as New Entrants ?

- **Goals of Research**
  - Better Understanding of Innovation Processes in Systems Industries
  - Best Practices for Managing Product Innovation in Systems/Network Industries
  - Predictions for Evolution of Industry Structure

Research Builds on Legacy

- **Large body of research on Innovation in the Management/Economics Literature :**
  - Innovators are not always the ones who appropriate the returns from innovation
  - Importance of complementary assets

- **Michael Cusumano's research :**
  - Book "Microsoft Secrets", Free Press (1995)
  - Strategic analysis of innovation processes, and product development

Technological Innovation can shake Industry Structure

Question : **How does Innovation Developed by Entrants Affect Established Firms ?**

Answer : **It Depends on the <u>Type</u> of Innovation**

- **Whether Innovation is Competence-Enhancing or Destroying**
- **Whether it Affects Components or Linkages between them**
- **Whether Innovation is a Complement or a Substitute**

Modular Innovation

- **Modular Innovation = Innovation on the Components, <u>Not</u> on the Linkages between Components**

- **Reinforces, rather than Obsoletes, the Architecture**

- **Enhances, rather than Devalues, Competence**

Strategic Investments Can Affect Competitive Dynamics

- At a certain point in time, an Entrant Chooses which Type of Innovation to pursue

- Depending on which Type of Innovation (complement or substitute) is being pursued, radically different outcomes await the Incumbent firm

Established Firms can affect the Type of Innovation pursued by Entrants by Encouraging Modular Innovation

Three Examples

- **Intel and Boardmakers**
  - share design info with board makers
  - integrate into new MMX chip audio and video functions
  - boardmakers invest in further enhancements

- **Microsoft and Independent Software Developers**
  - developers conference, Software Development Kits
  - integrate into operating system features developed by third-parties; integrate into operating system browsing as a function;

- **Adobe and Third-Party Developers**
  - "extensible architecture" for the core products
  - large number of plug-ins developed by third parties

"Breed, Skim and Absorb" : One Possible Scenario

- **<u>Breed</u> : Encourage innovation on complementary products by third-parties**

- **<u>Skim</u> : Pick from the complementary products the features that proved successful**

- **<u>Absorb</u> : Absorb the features developd by complementary innovators in new versions of platform products**

Hypothesis

Strategic Investments made by Established
Firms will Affect the Supply of Innovations, by
Manipulating Entrants Incentives to
Develop Complementary Products.

i.e. Incumbents Foster Modular Innovation.

Internet Telephony :
Research Strategy

- Visit several Firms Members of the ITC

- In-Depth Case-Study of One or Two Firms

- Conference Calls