Managing Open Innovation Through Online Communities

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Plan for the Talk

• “Open” and other kinds of innovation
• Firms and open source communities
• Open innovation and communities
• Thoughts going forward

Various Models of Innovation

Chandlerian Innovation

• Integrate to supply inputs, control outputs
  • R&D is an essential part of integration
  • Technology industries require large R&D labs
• Large manufacturers of early 20th cent.
• Basis of postwar MNC and TNC
• As recounted by Scale and Scope, The Visible Hand, etc.

20th Century Chandlerian R&D

Source: Chesbrough (2006)

Research Investigations
Science & Technology Base
Development
New Products & Services
The Market

21st Century Open Innovation

Source: Chesbrough (2006)

Internal Technology Base
External Technology Base
New Market
Current Market
Technology Spin-offs
Technology Insourcing
Licensing
Other Firm’s Market

“Open” innovation strategies
Defining “Open Innovation”

“Open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively.”

Source: Chesbrough (2006)

Making Open Innovation Work

Utilizing OI has three inherent dilemmas:
1. Maximizing returns to internal innovation
2. Incorporating external innovation in the firm
3. Motivating a supply of external innovations

Source: West & Gallagher (2006a)

Cumulative Innovation

- Initial innovation is rarely complete
- Competitors build on each other
  - Thus need rights to each others’ work
- Need for policy to provide incentives
  - Legal means: patents, grants/awards, ?
  - Normative means: reciprocity (Murray & O’Mahony 2006)

User Innovation

- Pioneered by von Hippel (1988, 2005)
- Intelligent users know their needs best
- Goal: engage users in innovation
  - Use empowerment, other motivations
  - Direct (toolkits) or indirect (feedback)
  - Requires processes, tools, design
- Found in ever-wider domains

Contrasting Innovation Models

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<th>Focal Firm</th>
<th>Suppliers</th>
<th>Customers</th>
<th>Rivals</th>
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Firms and OSS User Communities
Defining “Open Source”

Three dimensions (O’Mahony & West 2005):
1. A class of IP license (Rosen, 2005)
2. A development methodology (Crowston et al 2006)
3. A way to organize & govern communities (O’Mahony 2003; Shah, 2006)

“FL/OSS” vs. “OSS”

• Many similarities between free s.w. and OSS:
  ▪ “Free” IP licenses a subset of “open source”
  ▪ Development, community models are similar
  ▪ Congruent if not parallel objectives
• Divergent ideologies (Dedrick & West 2007):
  ▪ “Free software”: exploiting lock-in is evil
    ➤ Goal: making converts
  ▪ “Open source”: making money is OK
    ➤ Goal: get software adopted

What is an OSS “Community”? 

• A voluntary association of individuals
  ▪ Independent of work affiliation (O’Mahony 2006)
  ▪ Individual and shared objectives
  ▪ Solves collective action and coordination problems (Markus, 2006)
  ▪ Provide mutual reinforcement and support (von Hippel, 2005)
  ▪ Interests not necessarily the firms’ (O’Mahony, 2003; Dahlander & Magnusson, 2005)

What Communities Do

Voluntary exchange of contributors:
• Contributors provide labor
  ▪ For software production
  ▪ Peer-to-peer support (Lakhani & von Hippel, 2003)
• Contributors get benefits (e.g. Hars & Ou, 2002, Hertel et al, 2002)
  ▪ Extrinsic benefits: use, job market signaling
  ▪ Intrinsic: self-expression, professional growth
  ▪ Benefits only with public forums (Shah, 2006)

Potential Community Benefits

• Market feedback
  ▪ Ideas for enhancements
  ▪ Beta site evaluation
  ▪ Error identification/correction
  ▪ Incremental innovations
  ▪ Increased loyalty (switching costs)
  ▪ User contributions raise user commitment

Other Firm Benefits

• Symbiotic or parasitic gains from community (Dahlander & Magnusson 2005)
• Shape industry and pre-empt competitors (West & O’Mahony, 2005)
• Benefits spillover to participants and non-participants alike (Lee & Cole, 2003; West & Gallagher, 2006)
Linking Open and Community Innovation

Value Networks & Ecosystems
• Value chains have been supplanted by value networks
• Open innovation often depends on coordinating value networks (Vanhaverbeke & Cloodt, 2006; Maula et al, 2006)
• Profit & durable advantage by mediating network (Iansiti & Levien, 2004)

Typical IT Value Network
aka “business ecosystem”

Sponsor Roles in Communities
• When sponsors are involved in communities:
  ▪ Usually, a single sponsor controls project
    ➢ In rare cases, there are multiple sponsors
  ▪ Sometimes users can contribute directly
    ➢ Usually, they make suggestions to sponsor
  ▪ Of course, community managed projects don’t face this issue

Examples of Structural Variation in Sponsor Roles
Proprietary Software Topology

Example: MS Windows

Sponsor-Controlled OSS Project

Example: MySQL, Berkeley DB

Sponsor-Centric OSS Project

Example: PHP

Multilateral Sponsored Project

Example: Eclipse

Community-Managed Project

Example: Apache

Future Questions
Defining the Community Form

- We have lots of relevant community research:
  - Network organization (Powell 1990)
  - Non-profit community-based organization
  - Community of practice (Wengler 1999)
  - Online community (Butler et al 2002)
  - Open source community (Markus 2006; O’Mahony 2006)
  - Innovation community (von Hippel 2005)
- Is there a common definition? construct? theory?

Structure or the Software?

- Do communities succeed based on structural/organizational factors:
  - License
  - Governance mechanisms
  - Transparency (stay tuned: 0830 Friday)
  - User voice (and thus loyalty)
- Or is it the product and its need?
  - Would we ever copy the GNU/Linux structure?

Why is Multilateralism so Rare?

- Multilateral governance not often seen:
  - Eclipse has it
  - OSDL/FSG/LF keeps trying
  - Apache pretends firms don’t exist
  - Many firms control their communities
- Is this selfishness?
- Difficulty of aligning interests?
- Sheer path dependencies?

Codependence of “Success”

- Are community and firm interests strictly symbiotic?
  - I.e., one cannot succeed without the other?
- Is it possible to have a successful sponsored community without a successful sponsor?
- Is it possible for a sponsor to succeed at the expense of the community?