

# 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

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## Various Models of Innovation

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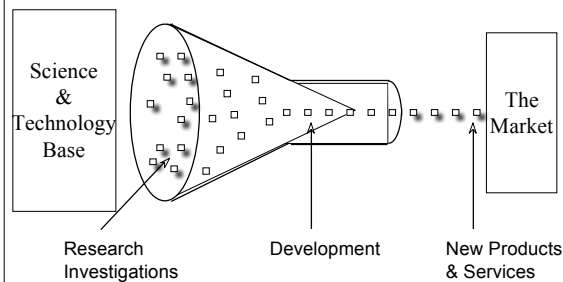
## Chandlerian Innovation

- 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.

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## 20th Century Chandlerian R&D

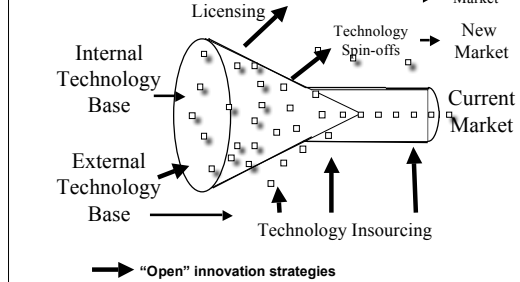
Source: Chesbrough (2006)



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## 21st Century Open Innovation

Source: Chesbrough (2006)



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## 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.”



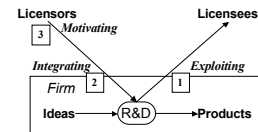
Source: Chesbrough (2006)

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## 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)

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## Cumulative Innovation

- Promoted by Scotchmer (1994, 2004)
- 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)

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## 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

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## Contrasting Innovation Models

	Focal Firm	Suppliers	Customers	Rivals
Chandler	X			
Chesbrough	X	X	X	X
Scotchmer	X			X
von Hippel	X	†	X	

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## Firms and OSS User Communities

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## 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
  - Corporate involvement in each type
- 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

## Not all OSS is Open Innovation

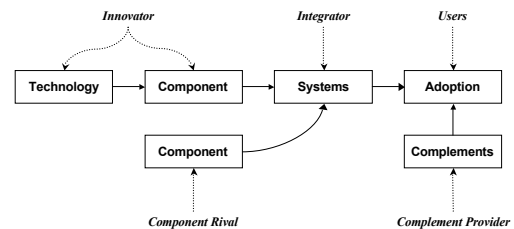
	<i>Open Innovation</i>	<i>not Open Innovation</i>
<i>Open Source</i>	Apple: Darwin IBM: Apache, Eclipse, OSDL	Project GNU
<i>Not Open Source</i>	PC hardware Game Mods	Microsoft applications Intut Quicken

Source: West & Gallagher (2006b)

## Value Networks & Ecosystems

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

## Typical IT Value Network aka "business ecosystem"



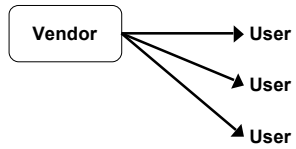
Source: West (2006)

## 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

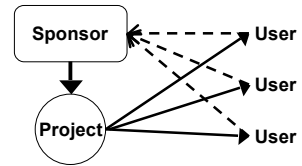
## Examples of Structural Variation in Sponsor Roles

### Proprietary Software Topology



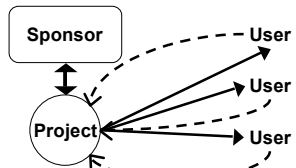
Example: MS Windows

### Sponsor-Controlled OSS Project



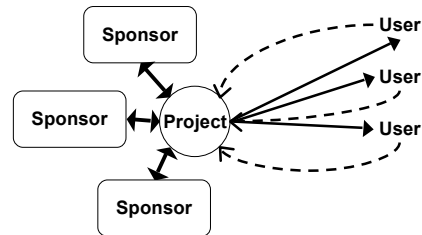
Example: MySQL, Berkeley DB

### Sponsor-Centric OSS Project



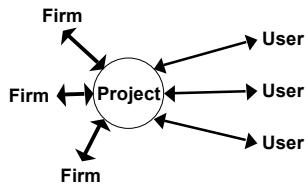
Example: PHP

### 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?