Patent Pools & Clearinghouses: A Theoretical Perspective

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Overview

1. Rationale Patent Pools (PPs) & Clearinghouses (CHs)
2. From Closed to Open Innovation (OI)
3. Patent Pools & Clearinghouses - A brief reminder
4. Survey
5. Case Study: IMI
6. Conclusions & Policy Recommendations
1. **Focus on Problem/Challenges**
   - Fragmented patent rights – patent thickets/anticommons: multiple patents, held by multiple patent owners (complex technologies)
     - Transaction costs (identification, negotiation, enforcement)
     - Legal uncertainty (e.g., hold-out, patent trolls)
     - High royalties
     - Royalty stacking

2. **Focus on Opportunity**

3. **Sector-specific?**

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1. **Focus on Problem**

2. **Focus on Opportunity**
   - Open Innovation
   - Pools and clearinghouses as models to appropriate value

3. **Sector-specific?**
   - “Complex” technologies:
     - Complementarity, interoperability (standardization)
     - Information technology, consumer electronics, biotechnology
Rationale PPs & CHs

<table>
<thead>
<tr>
<th></th>
<th>Patent Thickets/Anticommons</th>
<th>Open Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect/integrate complementary technologies (Standards)</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Reduce transaction costs</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Clear blocking positions</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Avoid costly infringement litigation</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

From Closed to Open Innovation

Source: Chesbrough, 2003
“...the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively.

Open Innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology.”
Open Innovation

Motives

- Inbound: value creation
- Outbound: value capturing
- ‘other’ reasons:
  - reduced R&D costs;
  - access to technology;
  - greater technical critical mass;
  - shared risk and liability;
  - better relationships with strategic partners;
  - technology transfer benefits;
  - improved access to capital and new business;
  - access to marketing/distribution strengths;
  - standardization;
  - etc.

Criticism

- Strong Dichotomy: black/white
- Are there (still) companies that only engage in closed innovation?
- Broad term, need for a clear definition?

But:

- Chesbrough coined the term and is leveraging the concept quite effectively
- the term is widely used (academics, business, legal experts, media, etc.)
- stimulates a reconsideration of long-held business models
### Closed v. Open Innovation

<table>
<thead>
<tr>
<th>Closed Innovation</th>
<th>Open Innovation</th>
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</thead>
<tbody>
<tr>
<td>• The smart people in our field work for us</td>
<td>• Not all the smart people work for us. We need to work with smart people inside and outside our company</td>
</tr>
<tr>
<td>• To profit from R&amp;D, we must discover it, develop it, and ship it ourselves</td>
<td>• External R&amp;D can create significant value, internal R&amp;D is needed to claim some portion of that value</td>
</tr>
<tr>
<td>• If we discover it ourselves, we will get it to market first</td>
<td>• We don’t have to originate the research to profit from it</td>
</tr>
<tr>
<td>• The company that gets an innovation to market first will win</td>
<td>• Building a better business model is better than getting to market first</td>
</tr>
<tr>
<td>• If we create the most and the best ideas in the industry, we will win</td>
<td>• If we make the best use of internal and external ideas, we will win</td>
</tr>
<tr>
<td>• We should control our IP, so that our competitors don’t profit from our ideas</td>
<td>• We should profit from others’ use of our IP, and we should buy others’ IP whenever it advances our own business model</td>
</tr>
</tbody>
</table>

Source: Chesbrough (2006)

### Open Innovation

<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>• Some sectors may be more appropriate for open innovation than others</td>
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<tr>
<td>• Continuum instead of dichotomy?</td>
</tr>
<tr>
<td>• Organizations use a combination of closed and open innovation strategies</td>
</tr>
<tr>
<td>• What is the role of the legal framework, in particular IP (patents and know-how), in these strategies?</td>
</tr>
<tr>
<td>• What kind of IP licensing models are most appropriate within the context of open innovation?</td>
</tr>
</tbody>
</table>

Source: Chesbrough (2006)
Assumption: Trend towards (more) Open Innovation

Trend towards more “Open IP”/“Open IP Licensing Models”? 

Classical “Open” Organizational Modes

- R&D Alliances
- Licensing (bilateral licenses and cross-licenses)
- Spin-offs
- Joint-ventures
- Purchase and Supply Agreements
- Mergers & Acquisitions
Open Innovation

‘Other’ “Open” Organizational Modes

• Open Innovation Intermediaries, e.g. InnoCentive, NineSigma
• Public-Private Partnerships (PPPs) e.g. IMI
• Consortia
• Networks
• Open Source

- Patent Pools
- Clearinghouses

Patent Pools

An agreement between two or more patent owners to license one or more of their patents as a package to one another and to third parties willing to pay the royalties associated.

1. Multiparty Agreement
2. (Sub)licensing to Third Parties
Patent Pools

• Advantages
  – No more stacking of licenses and royalties
  – FRAND-licensing
  – Reduced transaction costs
  – Legal certainty
  – Reduced litigation
  – Exchange of know-how
  – No need for state intervention
  – Dissemination of technology
  – No duplication of R&D investments

• Disadvantages
  – Risk of invalid patents in the pool
  – Proportional royalty allocation?
  – Cartel cover-ups

ONE-STOP-SHOP

US
First half 20th century
Sewing machines (1850)
Radio (1920s)
Airplanes (WW II)

Worldwide
20th century
End
STANDARDS
Electronics & Telecom
MPEG2 (1997)
DVD (1998 en 1999)

Biotech & Pharma
More recent developments
Golden Rice
SARS
Medicines Patent Pool-UNITAID pool
Pool for Open Innovation against Neglected Tropical Diseases-BVGH pool

Innovation
Incentive
Promoting
Competition

Promoting Competition
Innovation
Incentive
STANDARDS

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“While the concept is intriguing for biotechnology, it is questionable whether the technologies and markets for genetic inventions are amenable to pools”

OECD, 2002

- No standards in biotech (??)
- Interoperability irrelevant
- “Bunker mentality” – importance of patents
- High R&D costs, highly regulated markets
- Evaluation of patents = difficult process
- Incentives for dominant players
- Anti-competitive practices

Patent Pools

- Role of experts
  - Identification patent thicket
  - Identification essential technology
  - Agreement to set up a pool between patent holders
  - Evaluation patents
  - Develop operating model
  - Design full arrangement
  - Execution arrangement

- Role of authorities
  - Initiator (e.g. WHO)
  - Comp. agencies
  - Comp. law expert

- Role of patent attorney
  - Patent attorney
  - Contract law expert
Patent Pools

Competition Law

- Technology Transfer Block Exemption Regulation (TTBER)
- TTBER Guidelines
- ‘Old’ comfort letters
- Limited number of formal decisions of the European Commission

- Business Review Letters Antitrust Division of the Department of Justice (MPEG2-pool, DVD-pools, 3G3P-platform, etc.)


Patent Pools

Checklist

1. Patents
   - Valid
   - Essential
   - Evaluation independent expert
   - Dynamics of the pool

2. Patent holders- patent pool
   - Non-exclusive license to the pool
     - Licensing outside the pool should be permitted
   - Royalty allocation formula
   - Royalty collection and allocation by the pool
Checklist

3. Patent pool- licensees
   - Non-exclusive license & FRAND-terms
   - Development of alternative technologies
   - Non-exclusive grant-back for improvements (essential patents, reasonable conditions)

4. Institutionally
   - Independant expert
   - Confidentiality – Chinese Walls
   - Arbitration/mediation

Clearinghouses

‘Any mechanism whereby providers and users of goods [resources], services and/or information are matched’

Independent intermediary – two-sided platform
Clearinghouses

CHs providing only access

CHs providing access & use

Differentiation of offered services increases


Royalty Collection Clearinghouse

- **Platform:**
  - Provides Access to Information
  - Identifies the Essential patents
  - Matches Licensees with Licensors
  - Offers Standardized Licenses
  - Collects Royalties
  - Distributes Royalties
  - Monitors
  - Enforces Patents
  - Offers Dispute Resolution: Mediation & Arbitration

**LICENSING SUPERMARKET**
Survey

Licensing Practices

Cross-licensing
Patent Pools
Clearinghouses

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Survey

Licensing Practices

Patenting Profile

Knowledge CL, PP, CH
Experience CL, PP, CH
Attitude CL, PP, CH
- impediments
- merits

Recommendations

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Medical biotechnology

Pharmaceutical, therapeutic and diagnostic applications as well as research applications
Survey - Scope

Contracting states of the European Patent Convention (December 2007)

Survey - Sample

Professionals responsible for patenting and licensing

Members of LESI, Eurogentest, EuropaBio, national biotechnology organisations, or Proton-Europe

Response rate: 19.7%

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceutical company/subsidiary</td>
<td>30</td>
</tr>
<tr>
<td>Biotechnology company</td>
<td>64</td>
</tr>
<tr>
<td>University and Research institutes</td>
<td>46</td>
</tr>
<tr>
<td>Hospitals</td>
<td>20</td>
</tr>
<tr>
<td>Other</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>177</td>
</tr>
</tbody>
</table>
Survey - Results

In-licensing

Out-licensing

Survey - Results

Types of out-licenses (Interaction-effect organisation x type of out-license)

Likert scale variable experience

Never = 0
Sometimes = 1
Regularly = 2
Often = 3
Very often = 4
Survey - Results

Undue burden freedom to operate

- Yes: 20%
- No: 50%
- I don't know: 30%

Survey - Results

Remedies

1. Negotiating licenses
2. Inventing around
3. Research exemption
4. Abandoning the project
5. Opposition
Survey - Results

Knowledge about CLs, PPs and CHs

Likert scale variable knowledge
No = 0
Yes = 1

Survey - Results

Experience with CLs, PPs & CHs

Likert scale variable experience
No = 0
Yes = 1
Collaborative mechanisms, such as PPs and CHs in open innovation?

- Multiple patents, multiple patent owners
- Complementary patents
- One-stop-shop/licensing supermarket
- Long-term relationships – research collaborations
- Open way of dealing with IP

Key issues

Control

Exclusivity – non-exclusivity

‘Customized’ way of gaining FTO?

All patent owners – essential, valuable technologies – FRAND-terms

Competition Law?

Flexibility

Trust & Commitment
Objective
The objective of IMI is to support the faster discovery and development of better medicines for patients and to enhance Europe’s competitiveness by ensuring that its biopharmaceutical sector remains a dynamic high-technology sector.

Bottlenecks in the biomedical research and development process are:
- predicting safety,
- predicting efficacy,
- bridging gaps in knowledge management, and
- bridging gaps in education and training.

IMI supports collaborative research projects and builds networks of industrial and academic experts in order to boost pharmaceutical innovation in Europe.

Focus
- Precompetitive research – risk sharing
- Open Innovation

Governance
European Joint Technology Initiative launched by the European Commission (€1 billion) and the European Federation of Pharmaceutical Industries and Associations (EFPIA) (€1 billion in-kind contributions) in 2004.

Consortia:
- large biopharmaceutical companies that are members of EFPIA,
- small- and medium-sized enterprises,
- patients’ organizations,
- universities and other research organizations,
- hospitals,
- regulatory agencies,
- any other industrial partners.
IP Policy
(incl. copyright; design rights; patent rights; or similar forms of protection)

Objective
To promote knowledge creation, together with its disclosure and exploitation, to achieve fair allocation of rights, to reward innovation, and to achieve a broad participation of private and public entities in projects.

Principle
Flexibility (grant and/or project agreement), dissemination and fair allocation

Provisions
• Background/foreground/sideground (data, know-how and information) identification and ownership
• Access Rights Completion Project: foreground (royalty-free), background (royalty-free)
• Access Rights for Research Use: foreground (non-exclusive, fair & reasonable/royalty-free), background (non-exclusive, fair & reasonable/royalty-free)
• Access Rights for Research Use Third Parties: foreground (non-exclusive, fair & reasonable), background (non-exclusive, fair & reasonable)
• Access Rights Direct Exploitation: negotiations
• Confidentiality – publications (review, delay)
• Obligation to disseminate foreground within one year after the termination of the project

Case Study IMI
Conclusions & Policy Recommendations

Open Innovation & IP

• Need for tailor-made business models
  – Sectors
  – Partners (incentives)
  – Aims
  – R&D phase
  – etc.

• Does “Open Innovation” require a more “Open IP Culture”?
  – Issue of control (closed innovation)
  – Exclusivity – non-exclusivity
  – Interests of different stakeholders, e.g. university v. industry, large companies v. SMEs (see IMI)
  – Universities: government policies that focus on patents and revenue generation
  – Foreground/background definition, Access Rights

Stimulate rethinking traditional IP licensing models

Conclusions & Policy Recommendations

Open Innovation & IP

• Trust, balance of power – Governance Schemes
  – Role of neutral intermediary/expert
  – Expertise
  – Competition
  – Partners
  – Valuation of patents

• Commitment
  – Management e.g. Speeches GSK CEO Witty
  – Legal Department!

Support research into & experimentation with different governance schemes

Strong commitment to use such models in projects supported by the EU
Conclusions & Policy Recommendations

Questions or Comments?

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