Open innovation:
What it is and how it is changing IP use & business models?

Prof. dr. Wim Vanhaverbeke
Hasselt University
Vlerick Leuven Gent Management School
ESADE Business School

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What is 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.”

Chesbrough, Vanhaverbeke, West

*Open Innovation: Researching a New Paradigm*

(OUP, 2006)
A Closed Innovation System

Science & Technology Base

Research Investigations

Development

New Products /Services

The Market

Source: Henry Chesbrough
What changed?
New Division of Innovation Labor

- Increasingly mobile trained workers
- More capable universities
- Knowledge distributed more widely throughout the world
- Diminished US hegemony in many leading technology fields
- Erosion of oligopoly market positions
- Deregulation (EU-liberalization)
- Enormous increase in Venture Capital

Source: Henry Chesbrough
Inbound OI: Filling the gaps with external technology

Breakaway innovation takes a lot of time for reaching large business sizes.

*Immediate growth requires acquisition of early growth ventures.*

Source: Loek Nijman - Philips
Outbound OI: Profiting from others’ use of your technology

Internal Technology Base

External Technology Base

Licensing

Technology Spin-offs

Other Firm’s Market

New Market

Current Market

Technology Insourcing

Why business models are hard to manage: Mapping across domains

Business Model
- target market
- value prop.
- key attributes
- value chain
- how paid
- value network

Technical Inputs:
- e.g., feasibility, performance

Economic Outputs:
- e.g., value, price, profit

Measured in technical domain
Measured in social domain
The Business Model

- **Identifies a market segment**
  - Users to whom the technology is useful and the purpose for which it will be used

- **Articulates the value of the proposed offering**
  - Value created for users by the offering based on the technology

- **Focuses on the key attributes of the offering**

- **Defines the value chain** to create and deliver that offering (+ complementary assets)

- **Creates a way for getting paid**
  - Cost structure and target margins

- **Establishes the value network / eco-system** needed to sustain the model
OI ? Open source? Open science? User innovation?

OI always requires a BM

- Determines how *to create value*:
  - what to get from the outside
  - what to monetize by external pathways to the market

- How to *capture value* / to make money:
  - Technology market or product market
  - Sharing IP and sharing profits
  - Equitability + trust !!!
  - What is for free and what to pay?

- OI: (in-)(out-)sourcing / collaboration + value creation and capture
What to do if others own IP which is valuable to you?

Case of external corporate venturing
How to organize for OI?
External Venturing at XYZ

- **Pitfall:** Large firm invests in a start-up and uses its financial participation as a power tool to enforce cooperation on terms of the investing company.

Is it an interesting investment?
Yes? Then a minority participation

Once there is a financial participation there is no ex ante deal how to handle the transfer of technology!
How to organize for OI? External Venturing at DSM

- **Rationale:**
  - Strategic return, not a financial return
  - One of the BU should benefit from it
  - Therefore: Negotiation is a *three way negotiation*
    There are *two deals* packaged into *one overall deal*

1. **Option creation:**
   Is it an interesting investment?

2. **Option exercising:**
   Can the new technology create a new business in the future?
How to organize for OI? External Venturing at DSM

- Result: negotiate to get a maximal win-win situation
  - Both firms can offer each other a lot
- The large firm:
  - business and market intelligence
  - application technology
  - marketing know-how
  - large scale manufacturing
  - credibility among large potential clients
  - patent writing skills
  - …
- Start-up:
  - new technology, business model, etc..
  - entrepreneurial risk taking and decision making
  - …
## Tensions and debates: The following conflicting interests

<table>
<thead>
<tr>
<th>DSM Food Specialties</th>
<th>Sanus</th>
</tr>
</thead>
<tbody>
<tr>
<td>• No upfront investment</td>
<td>• High upfront investment</td>
</tr>
<tr>
<td>• Exclusivity</td>
<td>• Opportunity to work with other parties</td>
</tr>
<tr>
<td>• Quick results</td>
<td>• Time to develop products/markets</td>
</tr>
<tr>
<td>• No risk for DSM</td>
<td>• No risk for Sanus</td>
</tr>
<tr>
<td>• Technology to be used in strategic areas of DSM</td>
<td>• Limited, more focused approach on other applications</td>
</tr>
<tr>
<td>• Full access to IP of Sanus</td>
<td>• Access to DSM resources</td>
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</tbody>
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How to organize for OI? External Venturing at DSM

Six reasons not to start a power play with external ventures:

1. *Bad reputation:* when the large, investing firm is looking for interesting start-ups as a recurrent practice.

2. Pushing *too hard for a particular application* (based on the business model and proposed application of the large, investing firm):
   - Market potential of start-up technologies is still very uncertain because of the early stage technology. *Keep options open* for unintended but interesting applications.
   - Limits business potential of start-up (and thereby shareholders value).

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How to organize for OI?
External Venturing at DSM

Six reasons not to start a power play with external ventures:

3. Might *kill the spirit of good cooperation.*

4. *Kill entrepreneurial spirit by creating* another "corporate puppet on a string"

5. Could *limit exit possibilities and exit value* for other shareholders (by lock-in to/dependency on corporate)

6. *Could result in litigation* if perceived as abuse of economic power
Strategic use of IP in open innovation

Examples
Setting a standard and precompetitive R&D
License scheme of Bekaert & Continental
(technical standards)

100% 60%: compensation for licensing activities 40% 100%

Proposal:
• $X = \ldots \%$ of net sales value of supplied product
• Supplier collects royalties
• Cross-license agreement between client and supplier implying:
  • Bekaert to supply "other clients" at $X\%$
  • "Other suppliers" to supply the Continental at $X\%$
  • Bekaert grants sublicenses to "other suppliers". The latter can supply to "other clients" at $2X\%$
IP policy: IMEC’s position in the technology life cycle
IP policy: Imec's bridge function between academic institutions and industry

- Long term - many options
- Short term - applications
- Focus on academic institutions
- Focus on industrial actors
- R&D expenditures
IP policy: IMEC Industrial Affiliation Program

- **What**
  - R&D cooperation in generic technologies
  - Strategic program develop by IMEC and executed in IMEC
  - IIAP partners send guest researcher(s) to IMEC

- **Advantages**
  - Sharing costs, risks, research infrastructure, IP
  - IIAP partners get access to:
    - IMEC’s background knowledge
    - selected results of other partners in IIAP
  - bilateral contract within the framework of IIAP

- **Leverages**
  - resources
  - knowledge
  - cross-fertilization of research of different partners
  - shortening time to market
**IP policy:** IIAP – Generic framework

- **Common IP** ($R_1 - R_1^*$): co-owned – non-exclusive license
- **Partner IP** ($R_2$): exclusive license
- **IMEC IP** ($R_o$): non-exclusive licensing
- **Knowledge developed within the program**

**IIAP**
- Foreground knowledge
- Background knowledge
Open IP model can be generalized iff…

- There is a specialized supplier / facilitator different from the technology user firms
  - Consortium (Sematech)
  - Research organization (IMEC)
  - Technology firm (Millenium Pharmaceuticals)

- Facilitator leverages core assets to develop multiple "partnerable" applications:
  - Implies different focus on the technology life cycle: science / research (ex. technology platform in functional genomics) vs. applications (business oriented: disease categories)

- Facilitator has to build background knowledge:
  - e.g. Patents based on PhD-theses
  - together with partners / financed by partners

- IP: Commonly developed knowledge
  - Non-exclusive licensing
  - Exclusive licensing for particular applications (choice of partners)
Changing the role of your legal (and purchasing) department?

Some conclusions
Role of legal department

- **CI:**
  - Protecting a firm’s IP from infringements
  - Highly protective, hoarding technology
  - Maximal profit for firm: sue other firms!

- **OI:**
  - Constructive approach supporting the company’s development goals
  - Legal dep. should become strategic partnership builder
  - Willingness to be a risk taker rather than being risk averse
  - IP- and profit sharing / communicating with partners about confidentiality and IPR issues

- Developing new legal approaches of OI!! Patents pools / consortia
Open Innovation for Policy makers Vision-Eranet

Implementing and organizing open innovation
Exnovate as a network of excellence for OI-practitioners and scholars?

- www.exnovate.org
- An international network of excellence on Open and Collaborative Innovation
- Projects
  - CE and OI Masterclass (7th time at ESADE Barcelona June 14-18; 8th time in Tilburg November 18-24)
  - Monetizing unused IP in large companies with VCFs
  - RfP for open innovation metrics
  - Using best practices to improve OI in SMEs
  - …
Exnovate is an initiative of the European Center for Open and Collaborative Innovation.

**COMPANIES**

**ACADEMIC WORLD**

**PUBLIC POLICY MAKERS**

**SERVICE PROVIDERS**

"There is a small but growing invisible college forming around open innovation, and related areas of inquiry around distributed, collaborative, and user-centered innovation. This network exists already in the US and in Western Europe, and is beginning to expand in other areas of the world. We all have much to learn from one another, and Exnovate promises to provide a strong institutional support for open and collaborative research on open and collaborative innovation processes."

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**VENTS**

- "6th Master Class Open Innovation and Corporate Entrepreneurship with Prof. Henry Chesbrough"
  - October 1st - 7th, 2009
- "Grenoble Innovation Fair"
  - Oct. 22nd - 23rd, 2009

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**Exnovate in a Nutshell**

Exnovate is a platform for companies and knowledge intensive organizations that are practicing open innovation or intend to do so in the nearby future. Particularly,

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**Prof. dr. Henry Chesbrough**

*Executive Director, Center for Open Innovation*

*Haas School of Business, UC Berkeley*

[http://openinnovation.haas.berkeley.edu/](http://openinnovation.haas.berkeley.edu/)
http://www.exnovate.org/