ip4inno Module 4E
Open Innovation

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Context: Why Open Innovation Appeared?

- **technical complexity of products / innovations**
- **Modification of the global distribution of R&D** (e.g. R&D in China)
- **R&D and innovation costs**: even big companies cannot fully internalise R&D
- **patent filings**
  → more and more difficult to innovate without depending from prior patents (i.e. from external firms)

➔ **Growing need to cooperate with other firms for R&D and innovation.**

Content of the Module

- **Open Innovation - Collaborative Work**
- How to manage Technology Transfer
- Splitting Rights in a Partnership
- Models of Consortium Agreements

Collaborative Work and Open Innovation

1) Definition: Open / Closed Innovation
2) General considerations
3) Open Innovation: New Phenomenon?
4) IPR Market: a Critical Role

1) Definition: Open / Closed Innovation (1)

a) The Closed Innovation Model

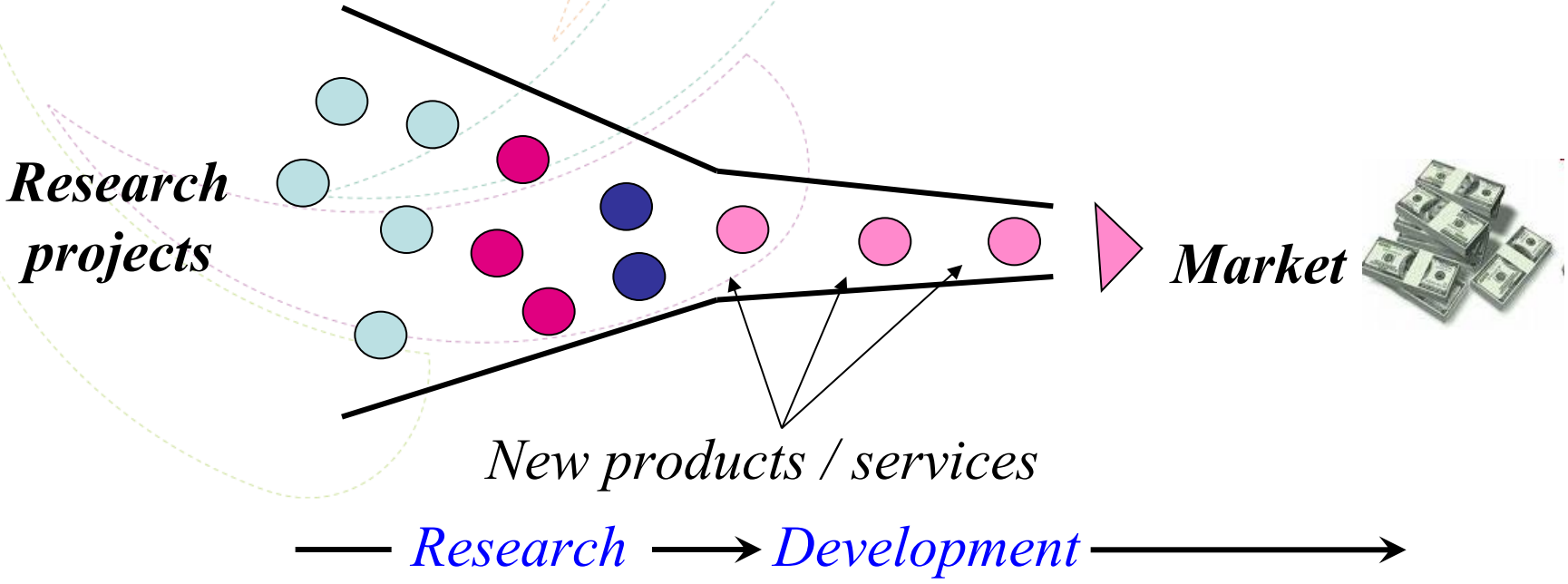
Closed innovation relies on a **"do it yourself"** strategy.

Similarly, firms should not rely on innovation developed elsewhere (the « **Not Invented Here** » syndrome)

Since **knowledge and innovation** are the main sources of a competitive advantage, the closed innovation model assumes that they should be **strongly protected in a defensive way**.

1) Definition: Open / Closed Innovation (2)

a) The Closed Innovation Model



The borders of the firm are impermeable
Innovation is an individual, integrated process

1) Definition: Open / Closed Innovation (3)

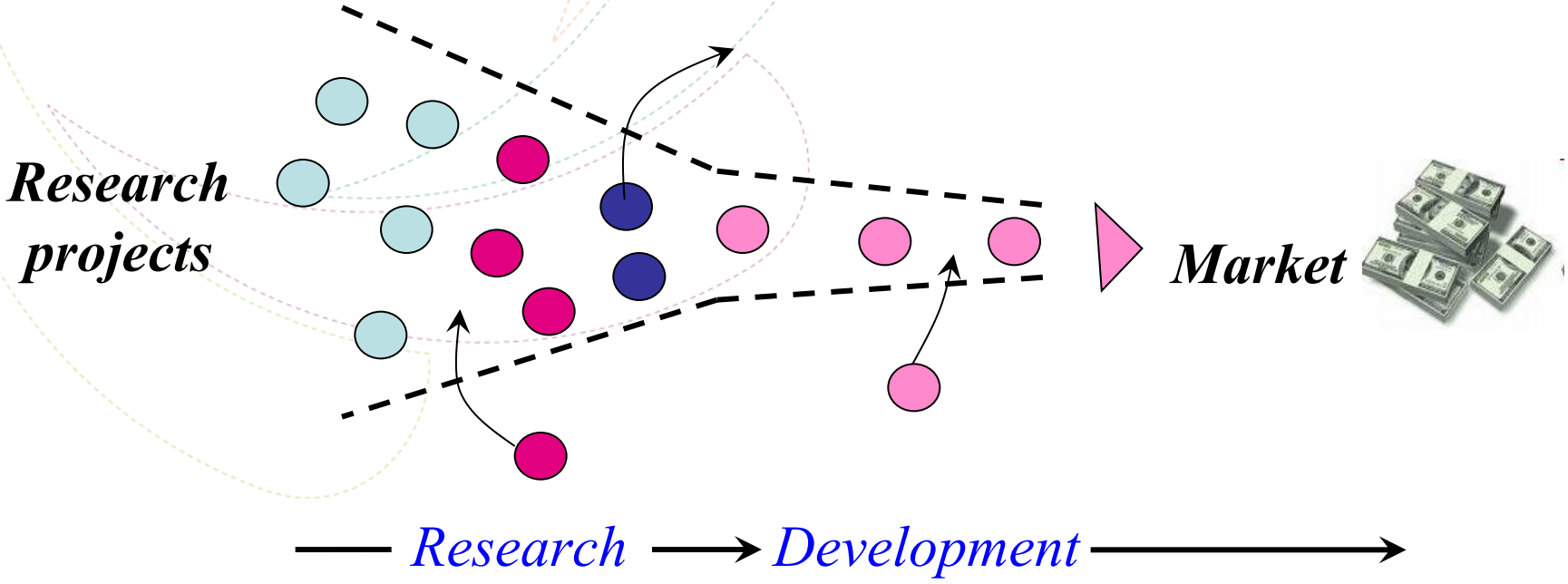
b) The Open Innovation Model

"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. ***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"

(Chesbrough *et al.*, 2006)

1) Definition: Open / Closed Innovation (4)

b) The Open Innovation Model



Innovation is is distributed over a wide range of actors who must collaborate, exchange technologies, etc.

1) Definition: Open / Closed Innovation (5)

c) Open vs Closed Innovation

Closed Innovation	Open Innovation
Straight and sequential line from research to product development, manufacturing and sales	***Networking***, ***interacting, sharing*** *with others* ***and accessing*** outside information and technology
"projects can only enter in one way, at the beginning, and can only exit in one way, by going into the market"	"there are many ways for ideas to flow into the process, and many ways for it to flow into the market"

2) General considerations (1)

- Open Innovation – a research collaboration between two or more parties - easy to explain – difficult to do, perform
- Contract covering both the collaboration, and related IP
  - legaly heavy, complete, goal oriented, often complicated contracts
  - Specialist competence needed, lawyer having extensive experience from collaboration contracts
  - Lawyer needs to work in team with IP and business people

2) General considerations (2)

- Roadmap, who does what, milestones, rewards
- Motivating for all parties, win/win
- IP considerations:
  - Which IP each party bring with them into the collaboration
  - Rights to resulting IP, who right to what?

2) General considerations (3)

- Termination clauses
  - What happends if goal can not be reached?
  - Interesting IP might have been created – how handle rights to that IP

- Steering and control committes common part
  - Steer research, steer IP activities
  - Control of money, how is it used, all used in collaboration?

2) General considerations (4)

- Disputes, how handle?
  - Mediation instrument
  - Court

- Parties, companies can be bought, employees can quit.
  - New owners of company, new employees, might be less interested in honouring the collaboration
  - Needs to addressed in contract

3) Open Innovation: New Phenomenon? (1)

- **For Chesbrough: A new paradigm**
  - Until 1990, firms mainly used the closed innovation model
  - Since then open innovation more often used
- **Reality is less clear-cut**: pharmaceutical firms practiced open innovation for a long time
- Distinction between two aspects:
  - **outside-in (insourcing)**, not new at all
  - **inside-out (outsourcing)**, clearly a new trend

3) Open Innovation: New Phenomenon? (2)

a) The two sides of Open Innovation

Outside-in: Use external knowledge

- Joy's Law: "No matter who you are, most of the smartest people work for someone else"
- The shift from *"Not Invented Here"* to *"Proudly Found Elsewhere"*
  - NIH syndrome: "let's re-invent the wheel"
  - Proudly Found Elsewhere: crowdsourcing platforms ex: Procter&Gamble

Inside-out: Rely on external paths to market

Create spin-offs, grant licenses, sell your technology…

3) Open Innovation: New Phenomenon? (3)

b) Open Innovation vs Open Source

Misconceptions:

Open innovation = Open source

Open innovation = public domain

Open innovation = no IP

Reality:

Open source is *one (extreme) mode* of open innovation

Open innovation results can be protected *or* released into the public domain

Open innovation needs a *functioning IP system* and an effective market of IP rights

3) Open Innovation: New Phenomenon? (4)

b) Open Innovation vs Open Source

Open innovation and Open source differ in two ways:

- **Open source is much more open than Open innovation:** Open source projects = only few access restrictions to knowledge; Open innovation relies strongly on restrictions and IP/patents
- **Open source is much more interactive than Open innovation:** Open source = collective knowledge production; Open innovation = often bilateral interactions

3) Open Innovation: New Phenomenon? (5)

c) Practical Modalities of Open Innovation

- Networking
- Collaboration and alliances: formal (research joint venture) and informal
- Spin-in and spin-out
- Licensing-in and licensing-out
- R&D consortia
- Acquisition and divestment (buying and selling)
- Patent pools

4) IPR Market: a Critical Role (1)

- The development of a **technology market** is a **fundamental dimension** of Open innovation (specifically to inside-out)
  - raise of new actors specialised in knowledge production (fab-less firms)
- **Without patents it is extremely difficult to trade technologies**
  - the free rider problem

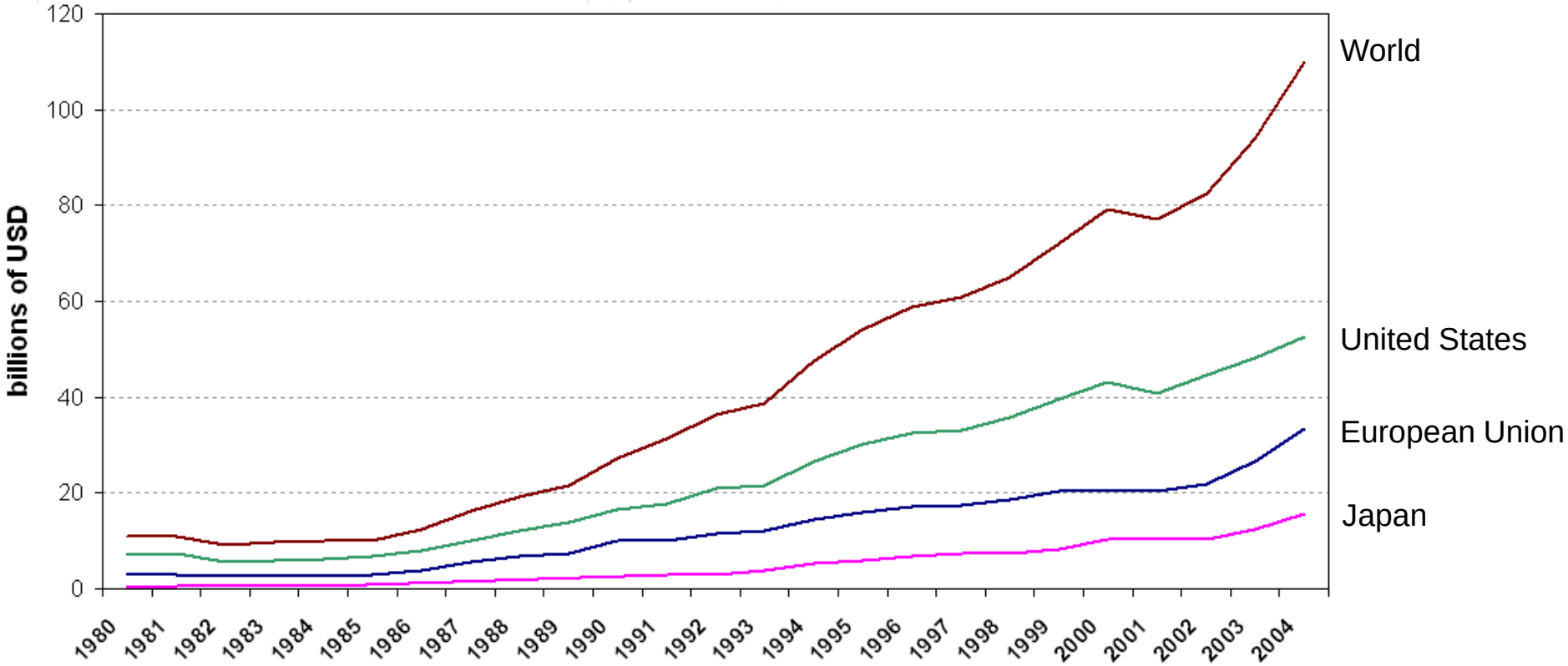
4) IPR Market: a Critical Role (2)

Patents secure the transaction, encourage firms to practice inside-out and therefore facilitate Open innovation

- Prevent the copy or imitation of a company's products or services;
- Allow negotiation in licensing, franchising or other IP-based agreements;
- Obtain access to new markets.

4) IPR Market: a Critical Role (3)

Receipts from International Licensing in Major PECD Regions



Source: OECD Science, Technology and Industry Outlook 2006 – ISBN 92-64-02848-X – © OECD 2006
StatLink: http://dx.doi.org/10.1787/324047030044

4) IPR Market: a Critical Role (4)

Three fundamental elements for the raise of an IPR and technology market:

- Information
- IP valuation
- Contractualisation

5) Conclusion

The development of Open Innovation leads to the emergence of an IPR market.

➔This means that solid IP rights are necessary.

➔So we can see that unlike Open source, Open innovation reinforces IPR applications rather than restrain them.

Content of the Module

- Collaborative Work and Open Innovation
- **How to manage Technology Transfer**
- Splitting Rights in a Partnership
- Models of Consortium Agreements

How to Manage Technology Transfer

1) Information Gathering
2) IP Valuation
3) Contractualisation of a Transaction

1) Information Gathering (1)

- **The lack of information, a barrier to TT**:
  - Businesses not aware of seller/buyer (mismatch)
  - Information asymmetry
- **Mismatch can be at two different levels**:
  - A company doesn't find any buyer for a technology
  - A company looking for a technology doesn't find any seller

➔Importance of tools helping in information gathering

➔role of patents as source of information

1) Information Gathering (2)

a) Finding Relevant Information is Key

- Firms can implement specific tools (often based on patents) **to identify potential customers or suppliers**.
- Important: this activity of gathering information can be **outsourced** to a large extent (to consulting companies for instance)

1) Information Gathering (3)

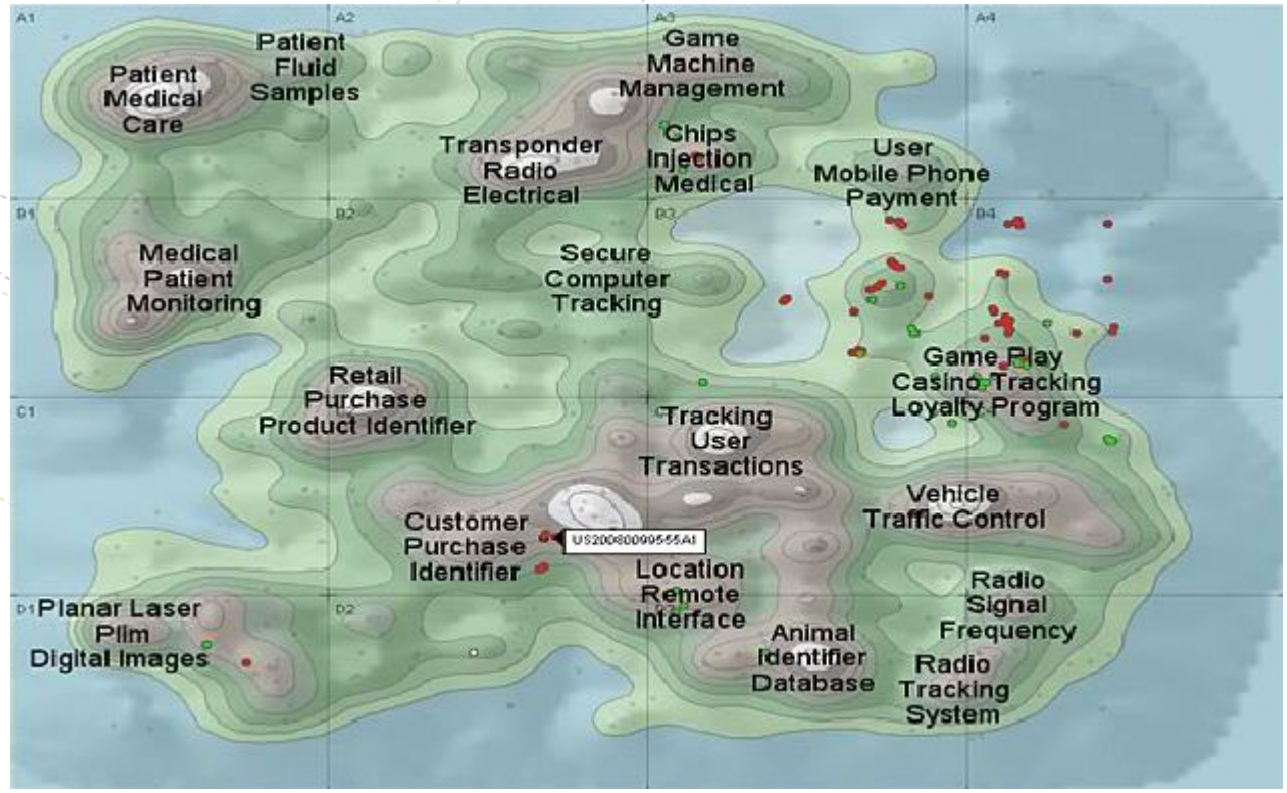
b) Kinds of Tools

Different kinds of tools used for the identification of relevant technology:

- Data collections
- Statistics
- Company profile
- Patent mapping and visualization
- Patent rating (value)

1) Information Gathering (4)

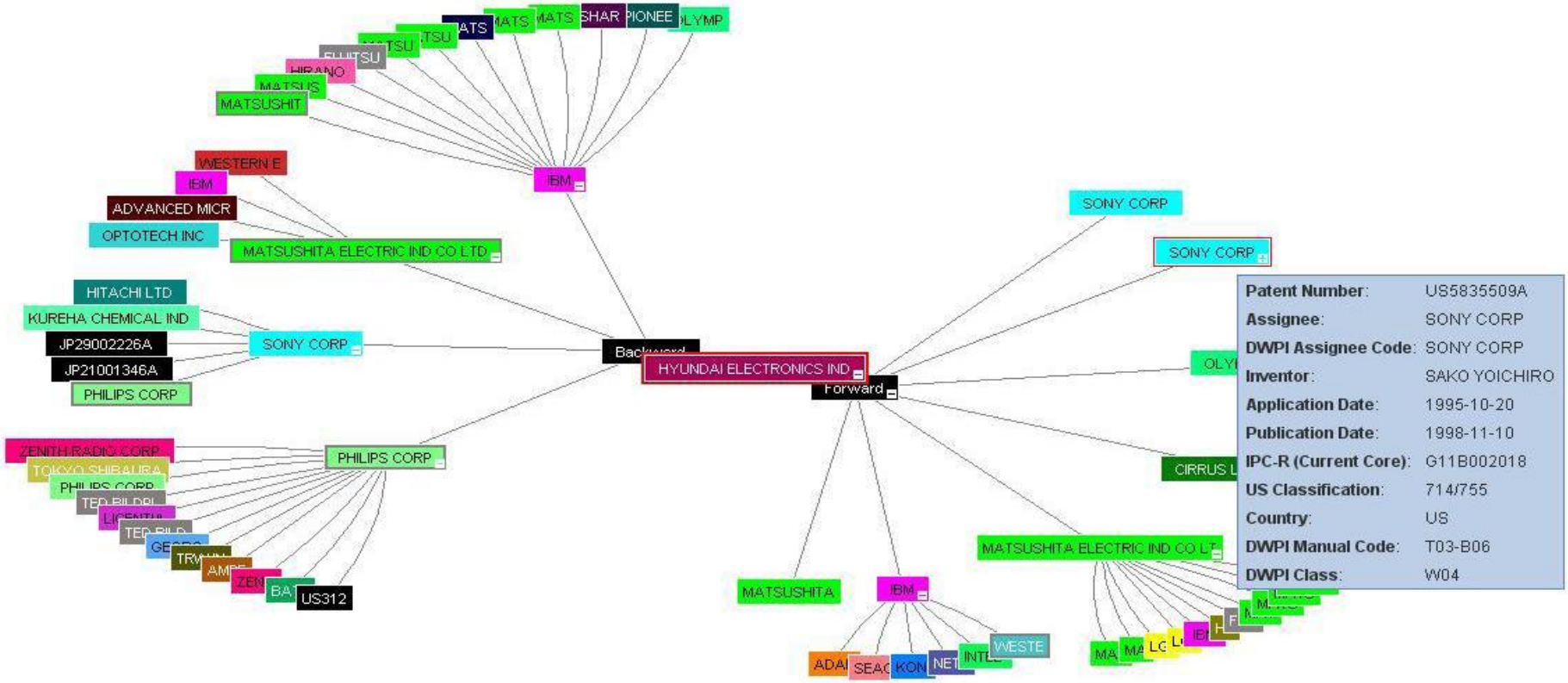
c) Example of Tools: Patent Mapping



Thomson Reuters

1) Information Gathering (5)

c) Example of Tools: Citation Trees



Thomson Innovation

2) IP Valuation (1)

- Once a relevant buyer or seller has been identified, one critical step is to assess the value of a technology, through the **value of intellectual assets**.

- Some specific tools have recently been developed **for** this purpose.

2) IP Valuation (2)

a) When Valuing Intangible Assets?

- Sale or license a patent (and related Know-How)
- bank loan or financing secured by intangible assets
- mergers and acquisitions
- joint-venture creation
- Increase in capital contribution
- Reward researchers
- Manage IP portfolio

2) IP Valuation (3)

b) Valuation Methods

- *Cost based methods*
  - Historic costs
  - Replication/replacement costs
- *Market based methods*: comparison with prices achieved in similar IP transactions
- *Income based methods*
  - Discounted Cash Flow (DCF)
  - Relief from Royalty method
- *Patent Rating methods*

2) IP Valuation (4)

c) Patent Rating Methods

- One patent appraisal adviser, one method…
- …but similar approaches
- up to 50 **econometric indices aggregated**
- **Automated tools** :
  - Global Patent Scorecard (Patent Board)
  - IP score (EPO)
  - Patent Factor index (Patent Café)
  - Patent strength (Innography)
  - IPQ (Ocean Tomo)

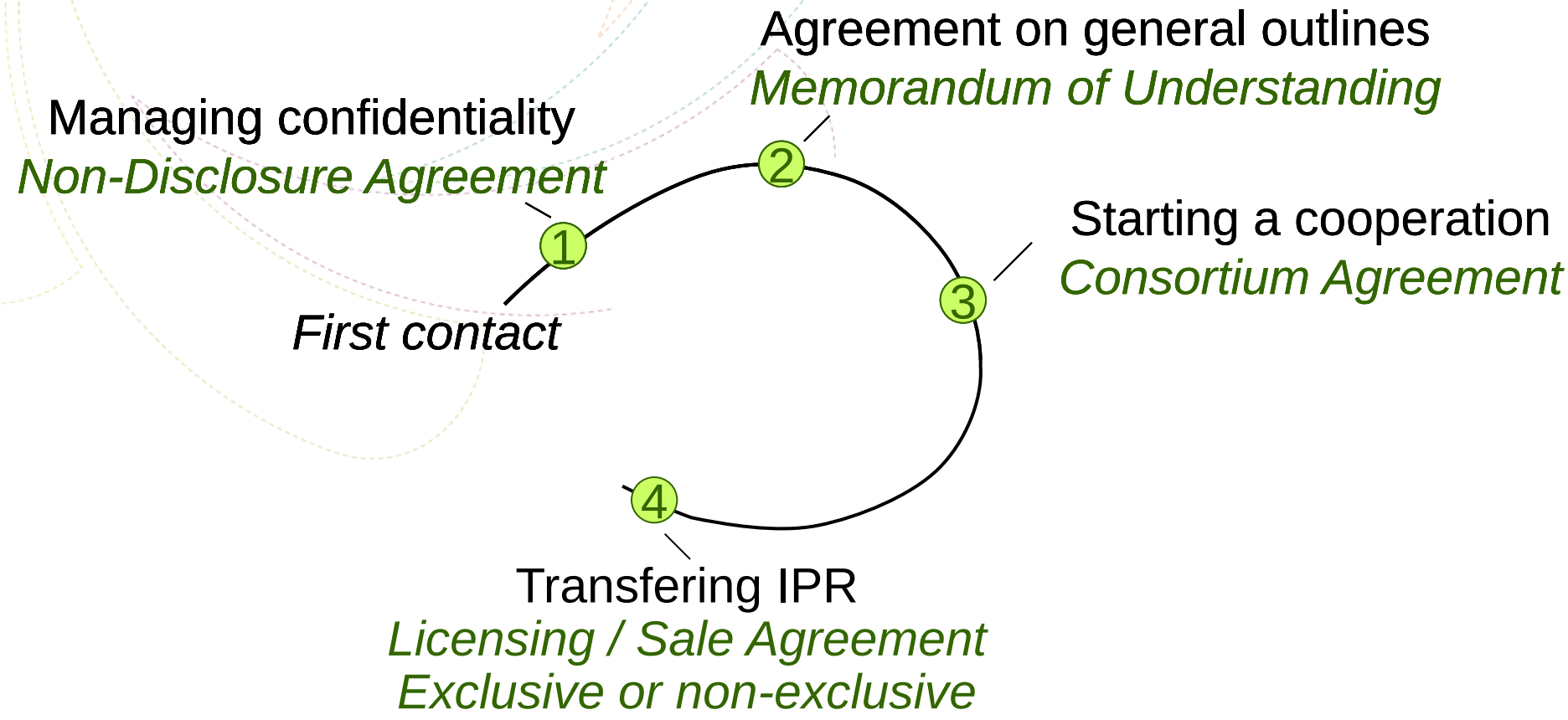
2) IP Valuation (5)

c) Patent Rating Methods: Limitations

- **Often works as a black box**
- **Limited value for a single patent**
- Strongly **depends on the field of activity**
- Mainly developed **for US purposes**

3) Contractualisation of a Transaction (1)

a) Timing for TT Contracts



3) Contractualisation of a Transaction (2)

b) Open Innov. Projects Rely on a Clear IP Strategy which Take into Account Following Items:

- number and scope of claims coverage
- geographic coverage
- filing velocity
- size of IP portfolio
- number and scope of trademarks
- number and scope of Copyrights

3) Contractualisation of a Transaction (3)

c) Confidentiality Agreements (NDA)

- Signed with ***any third party*** such as clients, suppliers, sub-contractors, partners in R&D etc. ***before*** entering into future ***relationships***
- Used each time non public information is likely to be exchanged (unilaterally or bilaterally).
- Discussion with investors, business partners, etc. has to be done ***confidentially*** to allow future patenting
- ***Protect information*** from divulgation and unauthorized transmission, misappropriation or use

3) Contractualisation of a Transaction (4)

d) Memorandum of Understanding

- Describes a ***convergence of will*** between the parties in a ***less formal*** way than other forms of contract
- ***Preliminary*** to a classical bilateral or multilateral agreement between parties, can be a useful way ***to state the key terms*** of a transaction as agreed during the negotiation process ***before entering*** into the final contract
- It can be ***binding or non-binding*** (vs a contract is a legally binding promise or agreement)

3) Contractualisation of a Transaction (5)

e) Consortium Agreements

- Consortium agreement = collaboration agreement
- ***Agreement among organisations*** planing to work together, in order to ***regulate internal issues*** related to work organisation, intellectual property (IP), liability and other matters of their interest.
- Key questions:
  - *Who owns the foreground IP?*
  - *Who has the right to exploit it?*
  - *What happens to background IP?*
  - *What happens to sideground IP?*

3) Contractualisation of a Transaction (6)

e) Consortium Agreements: Structure

It should contain:

- the **rights and obligations** of the project partners
- **project management** & communication arrangements
- **exploitation** rules and agreements
- provisions for partners changing
- **arbitration** procedures
- provisions relative to the **duration** of the collaboration and for **terminating** the collaboration
- The project plan, timescales and milestones

3) Contractualisation of a Transaction (7)

f) Technology Transfer Agreement

- Contract to sale or license IPR
- IPR and Know-how are licensed to permit the licensee to manufacture a product and/or to put into practice a process
- *Differences among licensors*:
  - industry: developed the technology and can manufacture the product itself
  - laboratory / university: only developed the technology

3) Contractualisation of a Transaction (8)

f) Technology Transfer Agreement

- *Precautions to be taken by the licensor*:
  - **avoid dissemination** of its own technology
  - **transfer enough knowledge** to allow the licensee to put into practice the technology
  - **manage responsibility** in case the licensed products are **defective or cause damages** to third party

- *Precautions to be taken by the licensee:*
  - obtain the **effective transfer** of the technology
  - ensure the licensor **technical assistance**, if required

4) Conclusion: Matching Buyers & Sellers

Growing Role of Intermediates

- **On-line**:
  - **"Smart" matching: Know-How and technology**
    Innocentive, Nine sigma, Your Encore, Yet2.com, Gate2growth…
  - **Web auction: anonymous bids on patents**
    Ocean Tomo, IP Auction.com…
- **Off-line**:
  - **Live auction**
    Ocean Tomo

Content of the Module

- Collaborative Work and Open Innovation
- How to manage Technology Transfer
- **Splitting Rights in a Partnership**
- Models of Consortium Agreements

Splitting Rights in a Partnership

1) Splitting the IP Rights
2) Joint Ownership in IPR
3) Manage Joint Ownership in IPR
4) Case Study

1) Splitting the IP Rights

A key issue…

- determines the subsequent Technology Transfer
- determines the profitability of the project

…but the priorities diverge:

- academic: desire to publish, be owner of the IPR
- Industrial: secrecy and commercialisation; unique user of the IPR

Grace period for filing of a patent:
exists in the USA, not in Europe.

2) Joint Ownership in IPR (1)

no common European legal concept of joint ownership

Patents in Europe

- **right to exploit the IP for your own benefit** without accounting to the others
- But cannot grant a licence or assign interest in the IP without the consent of the other owners

→ **you can use the IP yourself but cannot authorise others to use it without the consent by all co-owners**

2) Joint Ownership in IPR (2)

Patents in the USA

- In the absence of any agreement: right to use, sell or license a patent **without the consent** of the other co-owners *35 U.S.C. 262 Joint owners-Patent Laws 1999*
- Legal protection against patent infringements similar to normal patents, **but all owners have to be named** in the lawsuit

2) Joint Ownership in IPR (3)

Copyright in Germany

- each co-owner can assign his interest to a third party

Copyright in UK

- all of the owners have to agree for exploitation, licensing and sale

Copyright in USA

- each co-owner is free to use itself or to licence the joint work protected by the copyright
- pay a ratable share of any profits earned

3) Manage Joint Ownership in IPR (1)

Prior to the start of the project: Consortium Agreement

- **Definition** of the background and IPR of each partner
- **Access** to the background during and after the project
- **Protection and exploitation** of the results:
  - *Secrecy or patent application?*
  - *Who is in charge of the application, the extension and the renewal of the rights?*
  - *Which part of the revenues goes to every partner?*

3) Manage Joint Ownership in IPR (2)

<u>During the project: proof of the ownership (dated and signed lab book…)</u>

- **Prior use/possession** right (In most jurisdictions)
- **First-to-file** (Non-USA), **first-to-invent** (USA)
- **Traceability of the origin of innovations** in cooperative projects
- Identification of the **foreground and sideground** in a project

4) Case Study (1)

Splitting of IP Rights: Preliminary Work

Tomorrow you have an important meeting with your future partner dealing in particular with the issue of the IP Rights.

➔Prepare a check-list of crucial points to discuss. Justify each item you included in the list.

4) Case Study (2)

- **What?**
  - Background/Sideground/Foreground IP?
  - Patent application?
  - Know-How/Confidential Information disclosure and Technical assistance
- **How?**
  - Percentage of ownership?
  - Licensing rights?
  - Financial questions (who does the filing/renewal? IP exploitation: compensation?)

4) Case Study (3)

- **When and How Long?**
  - Duration
  - Termination of the agreement (bankruptcy, change of control…)
  - Effects of termination
- **Arbitration and applicable law**
- **Audit**

5) Conclusion

- **Splitting** the rights in a partnership is a **crucial point.**
- The more you **discuss** and **set-up the repartition** of the rights **in advance**, the better will go on the cooperation with your partners.

➔Don’t hesitate to **dedicate time** to discuss this issue. It is not lost time, **it ensure the future success of the cooperation.**

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- Collaborative Work and Open Innovation
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- **Models of Consortium Agreements**

Consortium Agreements - Terms

- Background IP: Generated before the project.
- Foreground IP: Generated in the project.
- Sideground IP: Generated at the same time as the project runs, but in activities outside of the project.
- Postground IP: Genarated in a certain time-span after the collaboration.
- Access rights: Licenses and user rights granted to another participants background or foreground IP
- Pre-emption right: First option to buy, of new IP

1) the Lambert Model (1)

- Created by the Lambert Working Group on IP in UK
- to **encourage university and industry collaboration**
- deals with the issue of knowledge transfer
- 5 Model Research Collaboration Agreements (one to one collaboration) and 4 Model Consortium Agreements (multi-party) **depending on who owns the IP of the Results**.

1) the Lambert Model (2)

a) Research Collaboration Agreement Models

	University	Sponsor
1	Owns the IP	Non-exclusive licence
2	Owns the IP	Non-exclusive licence Option for exclusive licence
3	Owns the IP	Non-exclusive licence Option to take an assignment of the IP
4	Use the results for academic purposes	Owns the IP
5	No right to publish without permission	Owns the IP

1) the Lambert Model (3)

b) Consortium Agreement Models

A- Each member **owns the IP** of the results **that it creates** ; non-exclusive licence, any member may exploit the results

B- One carry out the exploitation of the results, and have the IPR (or an exclusive licence); **share of revenues** generated to the others

C- Each member takes an **assignment** of the IP in the results that are germane to its core business

D- Each member owns the IP in the results that it creates ; **non-exclusive licence for the purposes of the project only**

2) FP7 Consortium Agreements (1)

Joint ownership FP7 default regime:

"each of the joint owners is free to grant non-exclusive licences to third parties, provided that it notifies the other joint owners at least 45 days in advance and that it gives them **fair and reasonable compensation** (which would normally include royalties, although not necessarily)." *(IPR HelpDesk)*

Models developed by professional organizations available: DESCA, EUCAR…

2) FP7 Consortium Agreements (2)

a) DESCA

= DEvelopment of a Simple Consortium Agreement available at **http://www.desca-fp7.eu/**

- Model developped for research collaborations by universities and research organisations
- Several options:
  - Large vs small project
  - **"fair and reasonable conditions" vs "royalty-free access"**
  - Special clauses for Software

2) FP7 Consortium Agreements (3)

b) EUCAR

= EUropean Council for Automotive R&D Model available at **http://www.eucar.be/**

- Model developped by representatives of the major European vehicles manufactures
- **More business-oriented**, facilitates economic exploitation and the dissemination of the project results
- **each joint owner is free to grant licences without any compensation, but notification is necessary**

2) FP7 Consortium Agreements (4)

c) DESCA and EUCAR Comparison

	DESCA	EUCAR
Background	delimitation possible	No limitation
Foreground	- Easy transfer to third parties - option: notification and compensation	- List for transfer, or notification and approval required - No compensation
Access Rights	All requests written	deemed as already granted

2) FP7 Consortium Agreements (5)

c) DESCA and EUCAR Comparison

	DESCA	EUCAR
Affiliated Companies	FP7 default regime	Easier, broader access rights
Confidential information	Has to be marked as such	Has to be handled carefully
Publications	Cooperation in the timely submission and publication of academic works	Dissemination of its own foreground without notifying the other parties

3) unicANR Model (1)

- ANR= French National Research Agency, funding agency for research projects and promoting interactions between public and industrial laboratories
- Model for public-private or public-public partnerships in research collaborations

3) unicANR Model (2)

	unicANR
Background	Knowledge necessary for its execution
Foreground	Own: no notification Shared: notification and pre-emption right
Access Rights	- Written request - free use of information for the project implementation, compensation for business concern

3) unicANR Model (3)

	unicANR
Confidential information	- Written confirmation of confidentiality - Background and foreground automatically recognized as confidential
Publications	- Written notification - no refusal possible if the publication is later than 18 months after the ANR submission

Conclusion: Key Recommendations (1)*

- *Don't Carve Up The Pie Before It Is Baked*
  - It's about value creation, not share of value
- *Not All Projects Are Worth Doing*
  - Use external market & IP data to assess value propositions
- *Fight for Win/Win*
  - Win/lose is really lose/lose
  - Use IP to illustrate win/win opportunities
  - Protect the other party; avoid asymmetrical deals & too much “advice"

* *from P. Germeraad, LESI, 2009*

Conclusion: Key Recommendations (2)*

- *Value Ongoing Relationships*
  - Time halves and value doubles with each cumulative experience with the same partner
  - Applies to IP competence/activities as well
- *Metrics Count*
  - Use simple outcome metrics; include IP and Know-how
- *Recognize Success*
  - Extrinsic more powerful than financial

** from P. Germeraad, LESI, 2009*

Conclusion: Key Recommendations (3)*

- *Find And Qualify The Best Potential Partners And Sources Of External Technology With The Aid Of IP*
- *Structure Open Innovation Agreements Appropriately*
  - Structure agreements to provide the right balance of opportunity and protection (including alternatives to IP ownership)
- *Integrate Open Innovation IP And Technology Into The New Product Development Process*

* *from P. Germeraad, LESI, 2009*

Selected literature and Websites

- Chesbrough, H., Vanhaverbeke, W. en West, J., eds. (2006), *Open Innovation: Researching a New Paradigm*, Oxford University Press.
- http://www.openinnovation.eu/
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- http://en.fi.dk/innovation/model-agreements
- http://www.desca-fp7.eu
- http://www.eucar.be
- http://www.anrt.asso.fr/fr/espace_europe/pdf/UNICANR+ELUCIDATION_v1.0-mai2010.pdf
- http://www.ipr-helpdesk.org/home.html

Selected literature and Websites, cont.

- Over 50 teaching hours of material, case studies, exercises, links and more can be found on

  www.ip4inno.eu

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