

Partnerships and Collaboration

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Outline

- **University and IP**
- **Different Types of Collaboration**
- **Open innovation**
- **Contacts and agreements**
- **EST Collaboration Examples**
- **WIPO University Initiative Program**



- **WIPO Support for Universities**

Roles of University

In the past.....

- Education
- Generate new knowledge through research
- Transfer the knowledge generated to the public for the benefit of society



Today, additional roles of university include....

- Research funds management
- Drafting research contracts and agreements
- Evaluation of technology
- Protection of research results
- Due diligence
- Technology marketing
- Licensing negotiation
- Increased collaboration with industry
- Entrepreneurship development
- Incubation of spin-offs/start-ups
- IP training for researchers
- Administration of institutional IP policy
- Monitoring deals etc.

IP & Tech. Management

Source: Yumiko Hamano, Roles of University
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University and IP rights

Universities should identify, protect, manage, utilize and profit from IP rights in the fields of :

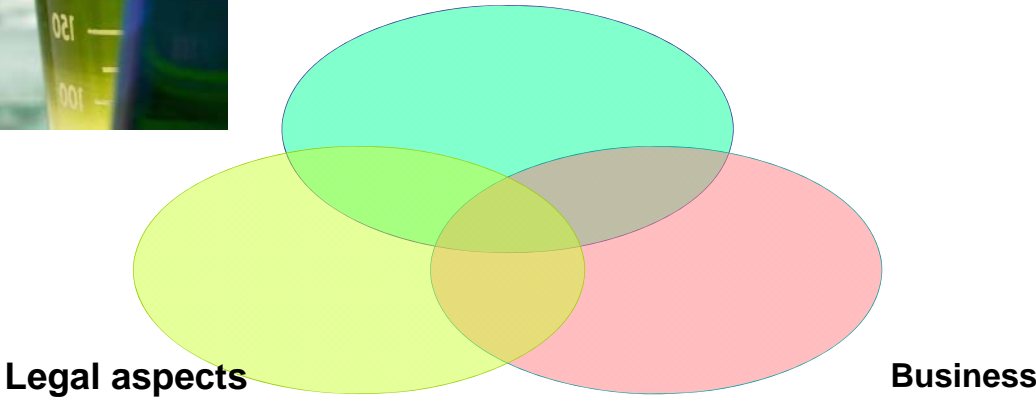
- Patents
- Copyrights
- Computer programs
- New biological materials
- Trade secrets
- Designs
- Trademarks





IP and Technology Management

Technology Management



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Necessary Ingredients for effective Technology Transfer

Adequate IP protection and enforcement legal framework

Funds

Marketable Technologies

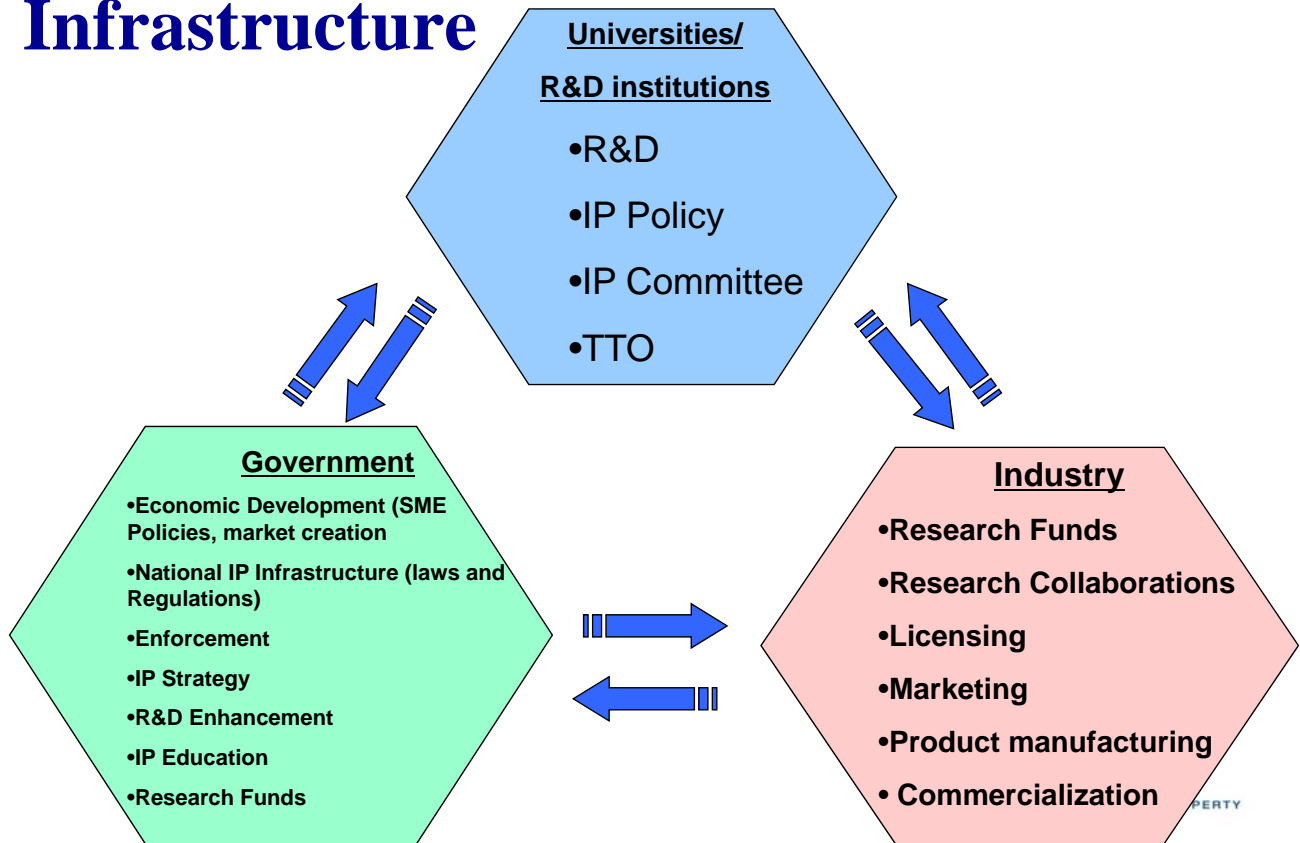
HR with Right Expertise

Infrastructure

Networking/ Collaboration

Source: Yumiko Hamano

University-Industry Collaboration Infrastructure



Stakeholders

- University and RI
- The managers of University and RI
- Professors and researchers
- Research assistants, post graduate students and visiting researchers
- Research collaborators and private sponsors
- TTO within the university
- Commercialization partners - Industry
- The national or state Government
- The public

Innovation and Technology Transfer

Objective of collaborations and technology transfer is IMPACT on:

- Creation and dissemination of knowledge relevant for both education and industry
- Development of particular skills needed in society
- Increasing reputation of university as player in society
- Enhancing university-industry partnership
- Finding solutions for needs
 - Including in health sector (saving lives) and other global issues
- Improving the quality of life
- Contributing to the development and job creation in the regions around R&D centers
- Enhancing the value of national products and services
- Contributing to global competitiveness

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Technology Transfer – *U.S. Activity in 2010*

- 20,642 Invention Disclosures
- Patent Filings and Patent/Legal Expenditures
 - 18,712 total U.S. patent applications
 - 12,281 new U.S. patent applications
 - 1,116 non-U.S. patent applications
 - \$323.2 million external legal fees paid
 - \$155.7 million legal fees reimbursed
- 4,469 Issued U.S. Patents

Source: 2010 AUTM Survey

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Open Innovation



Open innovation is described as:

“combining internal and external ideas as well as internal and external paths to market to advance the development of new technologies”

Source: Chesbrough, Henry, Open Innovation, 2003

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New Innovation Concept: Open Innovation

This new approach is based on a different knowledge landscape, with a different logic about the sources and uses of ideas. Open Innovation mean that valuable ideas can come from inside or outside the company and can go to market from inside or outside the company as well.

This approach places external ideas and external paths to market on the same level of importance as that reserved for internal ideas and paths to market during the Closed Innovation era.
(Chesbrough, Henry, Open Innovation, 2003)

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Driving Force

- Globalization
- Unprecedented technological advancement
- Access to unlimited information (e.g., Internet)
- Knowledge based economy
- Harsh competition
- Short product cycle
- Seek efficiency
- Reducing risks
- Globalized market
- Pressing needs for technological solutions to global issues (climate change, food security, public health, water, renewal energy etc.)



Change in Merck's approach

Merck is a Company committed to significant internal scientific research, but its 2000 annual report noted that:

“Merck accounts for about 1 % of the biomedical research in the world. To tap into the remaining 99 %, we must actively reach out to universities, research institutions and companies worldwide to bring the best of technology and potential products into Merck”

(Chesbrough, Henry, Open Innovation, 2003)

Networked Innovation Examples

- Innocentive (www.innocentive.com)
 - Crowd-sourcing challenges
- NineSigma (www.ninesigma.com)
 - Engages networks of innovators to solve targeted problems
- P&G Connect & Develop
(<https://secure3.verticali.net/pg-connection-portal/ctx/noauth/PortalHome.do>)
 - Locates external ideas to combine with internal R&D
- Energy Innovation NW (Kaufman) (<http://www.energyinnovationnetwork.org/>)
 - Network of researchers, financiers, etc. for energy solutions
- Innotribe (www.innotribe.com)
 - Connects start-up innovators to investment entities
- Cisco I-Prize (www.cisco.com/web/solutions/iprize/index.html)
 - Open web competition for the best solution – won by the Rhinnovation Team of 5 students from Technological University in Monterrey, Mexico
- Open Xerox (<http://open.xerox.com/>)
 - *Web site where Xerox displace new products related to web applications and web services for testing, comments and licensing.*

Open Innovation Models:

- Lilly
- DuPont
- Apple
- Toyota
- IBM
- Nokia
- P&G
- GE
- Google
- 3M
- Samsung
- Novartis
- Starbucks
- Microsoft

These companies have realized the power of admitting that not all good ideas start at home. Making network innovation work involves cultivating contacts with start-ups and academic researchers, constantly scouting for new ideas and ensuring that engineers do not fall prey to “not invented here” syndrome, which always values in-house ideas over those from outside.

(The Economist, Lessons from Apple. 09/06/2007)

Globalization of R&D

Increased partnerships beyond national frontiers:

- **Nokia + University of Cambridge (Nanoelectronics)**
- **Microsoft + Inria: French computer science institution (IT)**
- **Hewlet-Parckard = IT Laboratory in San Petersburg**
- **Creation of European Institute of Technology (a research network without a localized headquarter) by the European Commission: €3.2b 2008 - 2013**

Open Innovation vs. Closed Innovation

	Open Innovation	Closed Innovation
R&D	External R&D can create significant value.	To profit from R&D, the company must discover, develop and own the technology.
Staff	It is recognized that not all smart people have to be inside the organization. Companies/organizations can benefit from talents outside the companies/organization.	The companies /organizations believe that they should invest in talented people inside companies /organizations.
Business Strategy	The company does not have to get into the market first. The most important thing is to have a clear and strong business model	The company believes it has to speed up and get into the market first in order to succeed.
Intellectual Property	The companies license in patents from others and license out what is not in line with the business model	The company controls its IP and do not exchange technology with others.

Purposes of Open Innovation

- R&D cost efficiency
- Diverse knowledge
- Quick fix
- Constant innovation
- Market expansion
- Enhance capacity
- Focus on core business
- Building strong IP portfolio
- Long-term business relationship
- Networking
- Create and capture new opportunities



Globalization

- **Internet → Easy access to information**
- **Global market**
- **More competition**
- **Need to improve efficiency**
- **Need to improve quality**
- **Fast technology cycle**
- **Technology interdependency → Need to collaborate**
- **Intangible assets**
- **Knowledge based economy**

Cooperation with Universities

	Networking	Post-docs and sabbaticals	Sponsored Research or Joint Research	Licensing-in	Alliances Endowment
Examples	<ul style="list-style-type: none"> • Conference Attend /Speak 	<ul style="list-style-type: none"> • Students • PhDs • Post-doc • Professors 	<ul style="list-style-type: none"> • Experimental studies • Clinical studies <p>EU type projects</p>	<ul style="list-style-type: none"> • Technology transfer offices 	<ul style="list-style-type: none"> • Strategic alliances

Source: Nestlé Research Center

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Privately Funded Research and IP

Privately funded research is where the resources are supplied by private enterprises or organizations:

- **Contract research:**

Research which is conceived and funded by industries to provide a solution to a specific problem

- **Sponsored research:**

Where a university conceives a research project and prepare a proposal for funding and where the funding agency is not directly a beneficiary of the research results

- **Collaborative research:**

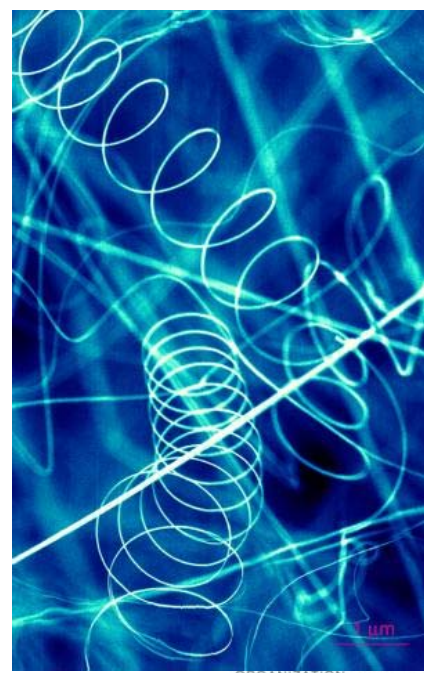
Research collaboration between a public university and private research unit of an enterprise or private organization

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Different Types of Research Collaboration contracts

Research collaborations are managed by legal agreements such as:

- Contract research agreement
- Collaborative research agreement
- Consulting/know how Agreement
- Material transfer agreement (MTA)
- Confidentiality agreement (NDA)
- Participation agreement
- Licensing agreement



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Non Disclosure Agreement (NDA)

- known as “confidentiality agreement”
- Any information disclosed to another party
- NDAs prevent third parties from using the information disclosed without the permission
- NDAs are often exchanged before licensing negotiation
- Companies often request researchers to sign NDAs before entering research contracts

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Non Disclosure Agreement (NDA)

NDA provisions include:

- Identification of parties
- Identification of confidential information
- Definition of purposes for which information can be used
 - E.g., solely for purposes of evaluating a licensing opportunity
- Requirements for return/destruction of confidential information

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Non Disclosure Agreement (NDA)

NDA does not apply to:

- Information in the public domain
- Information already possessed by the recipient
- Information disclosed to the recipient through legitimate means



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Material Transfer Agreement (MTA)

- Contracts that govern the transfer of physical assets,
- Typical materials are biological materials (reagents, cell lines, plasmids, and vectors) that are transferred for the purpose of research or commercialization
- Chemical compounds
- MTA ensure transfer of possession but not legal title



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IP Policy and Privately Funded Research

To encourage privately funded research, the institutional IP policy should provide clear provisions on:

- Approval procedures for privately sponsored research proposals
- Ownership of IP generated from privately sponsored projects
- Licensing of IP generated from privately sponsored projects
- Confidentiality issues of privately sponsored projects

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Licensing Agreement

- **The subject matter of the agreement:** What is licensed?
- **Scope of the license:** What are you allowed to do with it?
- **Financial Terms**
- **Licensing Conditions**
- **The licensor's obligations**
- **Obligations common to both parties**

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Key Terms and Conditions

- **Subject matter (use specification, technical description, patent No., name of the invention, trademark, standards?)**
- **Scope of the license (make, use, sell, make copies, distribute?)**
- **Field of use (technical fields?)**
- **Ownership**
- **Confidentiality**
- **Exclusive or non-exclusive**
- **Sub-licensing**
- **Territory**
- **Duration (How long? Does this depend on events?)**
- **Financial terms (Royalty, Lump-Sum, stock, payment method)**
- **Development rights**
- **Derivative works, improvements**
- **Future version of the technology**
- **Warranties (for risk of technology defect, defect in title, infringement)**
- **Dispute settlement (where settled? Who indemnifies against risk from 3rd party claims?)**

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Licensing Negotiation

Four Phases:

- 1. Preparation Phase*
- 2. Discussion Phase*
- 3. Proposing Phase*
- 4. Bargaining Phase*



Source: *“Exchanging Value - Negotiating Technology Licensing Agreements - A Training Manual”*

http://www.wipo.int/sme/en/documents/guides/technology_licensing.html

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Preparation for Negotiation

- What is the business reason for this license?
- What is the best result that can be obtained from this agreement?
- What outcome do you want to avoid?
- What leverage do you and the licensee have?
- What are your and licensee’s positions on the key issues?
- What are your and licensee’s lowest and highest limits?
- What are you willing to compromise?

Negotiation Tips

- ✓ **Win-Win**
- ✓ **Start with A Minor – Easy to resolve issue**
- ✓ **Best Case v. Worst Case Scenario**
- ✓ **Protect Credibility/Be Accurate**
- ✓ **Assess & Trade Variables Carefully**
- ✓ **Separate People From the Process**
- ✓ **Listen to What is Being Said & Not Said**
- ✓ **Remember - Everything is negotiable**

Source: Kitisri Sukhapinda, United States Patent and Trademark Office

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Commercialization <Start-up and Spin-off>

Example: US in 2010

- **651 new companies were created based on new technologies generated in some 200 US universities**
- **80% were based in the university's home state**
- **Over 600 (15% of total US licensing) licensed to these companies**
- **50% of all licensing agreements to SMEs**
- **3657 start-ups still operating by the end of 2010**

Source: AUTM U.S. Licensing Activity Survey FY2010

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University-Industry Collaboration

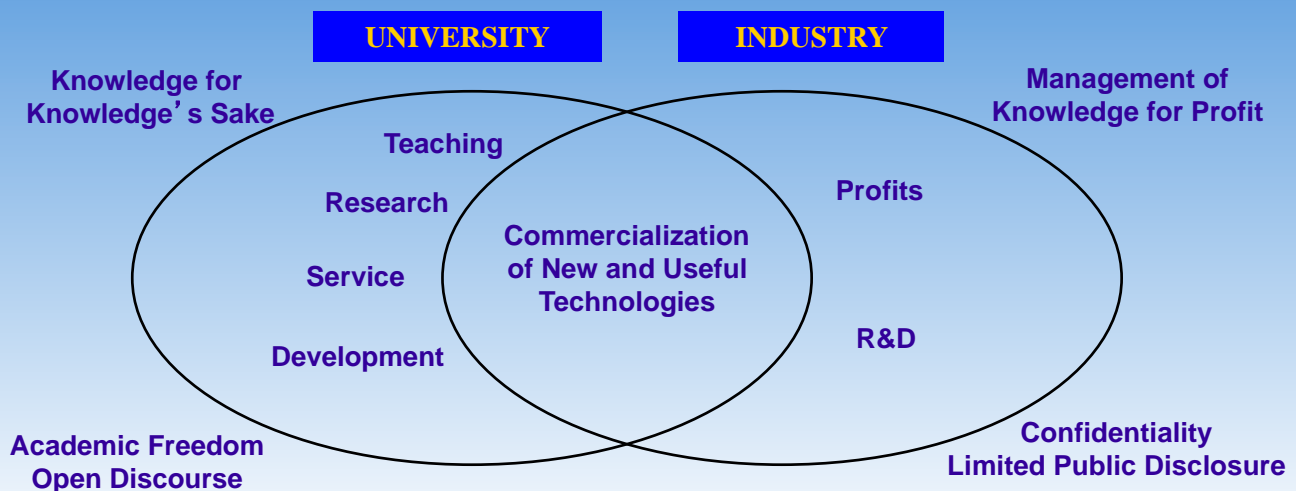
<Opinion of Industry >

- University general attitude is poor do not view industry as a 'Customer'
- Arrogance, do not like working with small firms
- Complexity of deal & weird expectations
- Too cumbersome
- In some cases licensing fees for university technology are too high
- Universities rarely license-in research from any source
- University research is generally at a too early stage of development
- Univ. rarely engage in research in our line of business
- Univ. policies regarding delay of publication are too strict
- University often refuses to transfer ownership to our company
- We are concerned about obtaining faculty cooperation for further development of technology

Source: Jerry G. Thursby & Marie C. Thursby / Dato Mohamed Shariff

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Addressing Conflicting Values and Common Interest



Source: Louis P. Berneman, 1999

Major Challenges to commercialize R&D results

- Lack of IP management infrastructure
- Lack of strategic research planning
- Gap between basic research and market needs
- Lack of funds for IP protection
- Lack of IP knowledge
- Lack of expertise to manage TT and commercialization process
- Lack of entrepreneurial culture among researchers
- Lack of business skills
- Lack of marketing skills
- Lack of support (Government, Senior managers) and incentive
- Culture gap (University vs. Industry)

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WIPO University Initiative Program

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WIPO University Initiative Program

- Adopted by Member States during WIPO General Assembly 2002
- To assist universities in building IP and technology management capacity
- Integrated into mandates of and administered by the Innovation Division of WIPO
- The Program scope and activities renewed
- >260 partner universities and R&D institutions worldwide

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WHY?

Governments and universities in developing countries are increasingly investing in R&D activities...

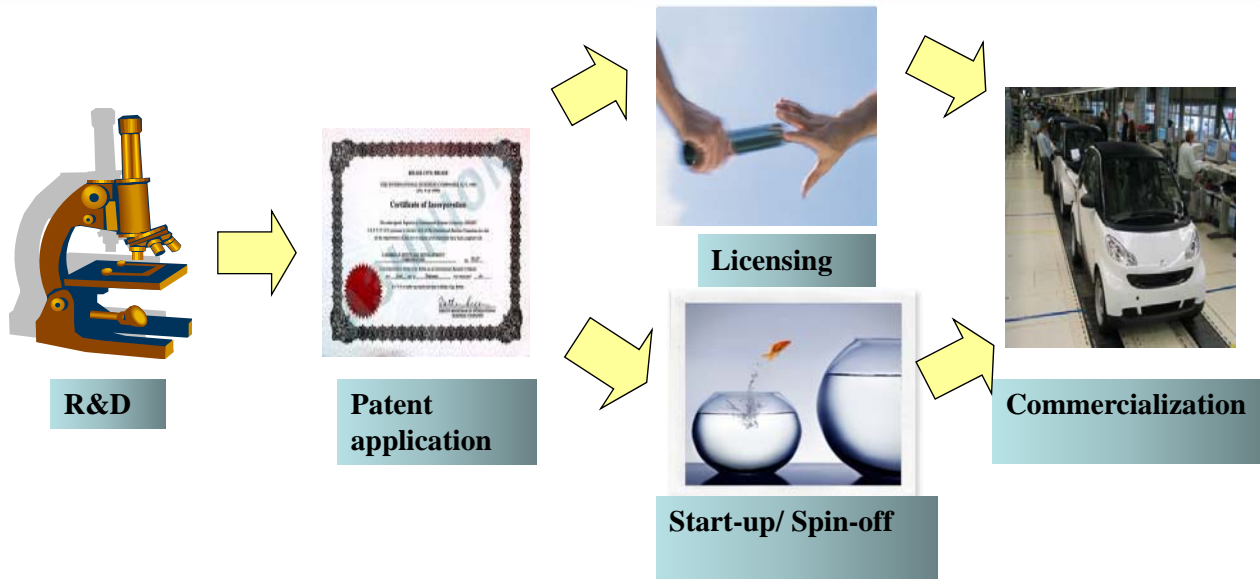
...but they have not enjoyed the full benefit from the investment due to lack of knowledge and experience in IP and technology management

Pressing needs for building technology transfer infrastructure and skills in universities and R&D institutions in WIPO Member States

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From Laboratory to Market



Technology Transfer

CREATION

PROTECTION

EXPLOITATION

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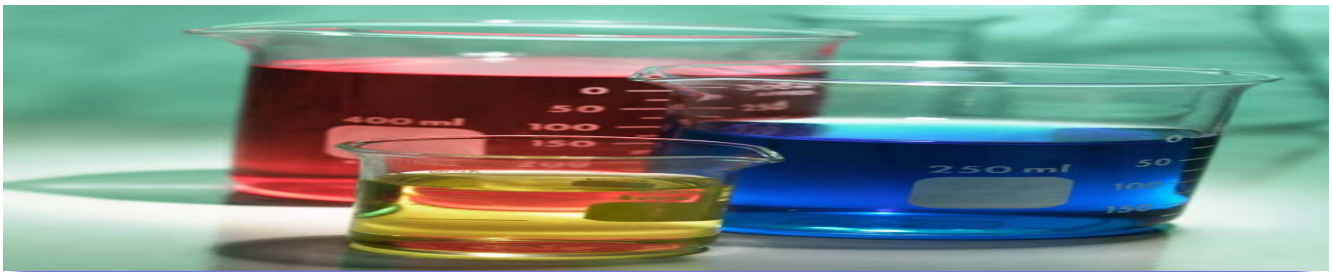
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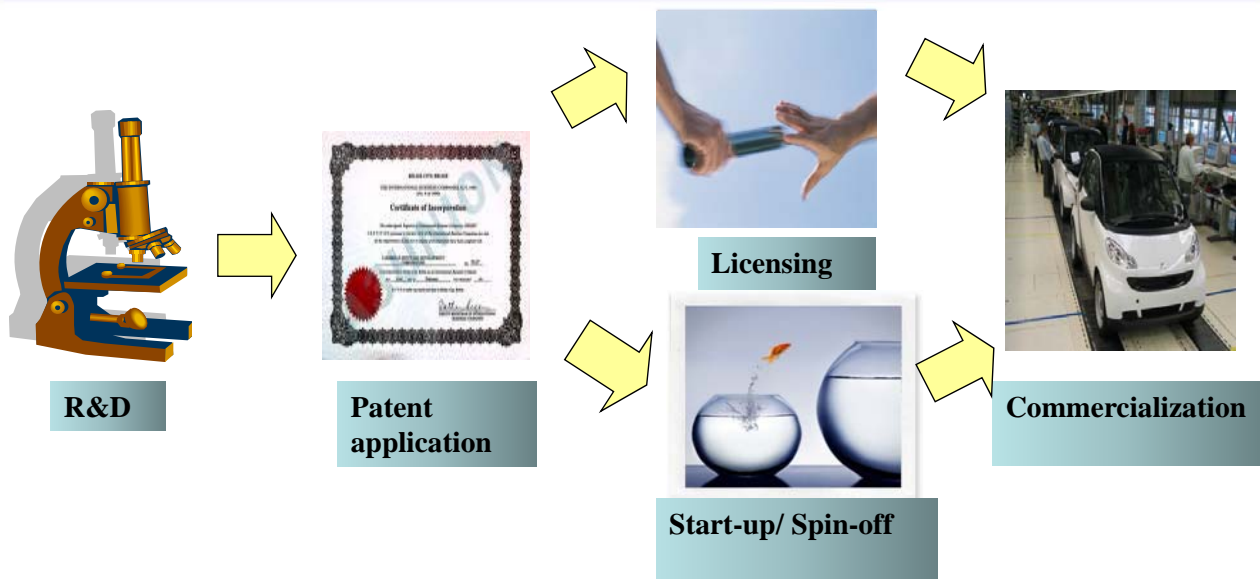
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Promotion of Effective Use of IP, in particular, Patents

- **Build knowledge of IP systems, especially patent systems**
- **Foster IP protection and better understanding of protection process**
- **Promote use of patent information**



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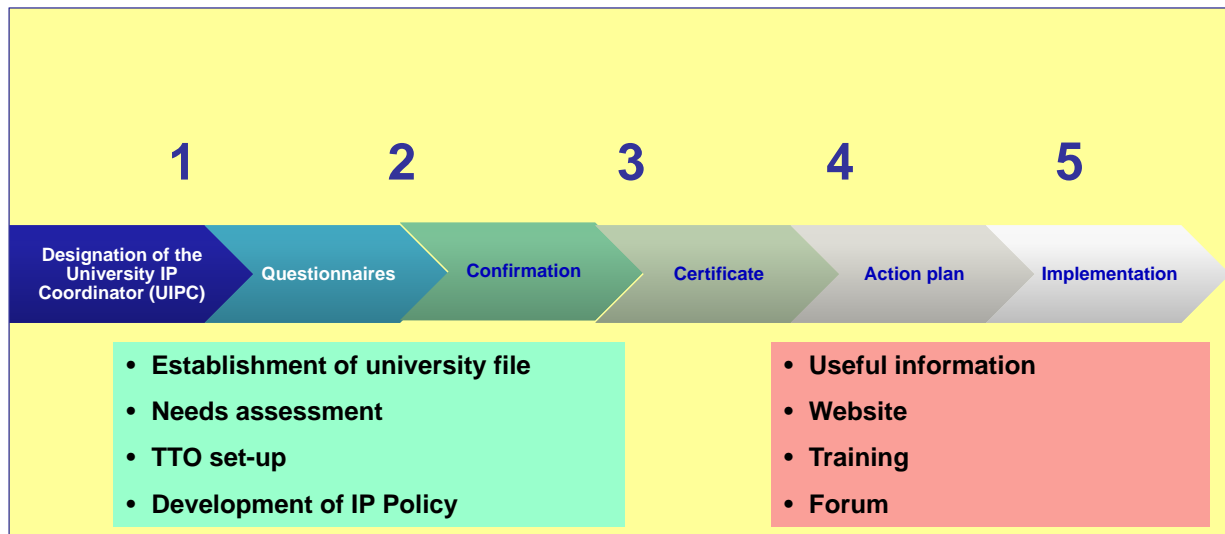
Creation of National/ Regional/ Global University IP Forum

- **Creating an IP and technology transfer forum among partner universities for the purpose of sharing and disseminating information, experience and best practices**
- **Facilitating national and international collaborations between universities and industries**

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Becoming Partner University



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Country Innovation Framework Report

- Based on communications with UIPC and our research
- Innovation Policy
- Legal framework (ownership, R&D related)
- R&D activities
- Patent system
- Patent activities
- Government support

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Individual Needs Assessment & Customized Action Plan

- Needs assessment based on the Application Form and interview with UIPC
- Individual feedback – each partner institution will receive the feedback
- Four phases of activities depending on the needs
- Some 34 actions
- 3-4 years plan

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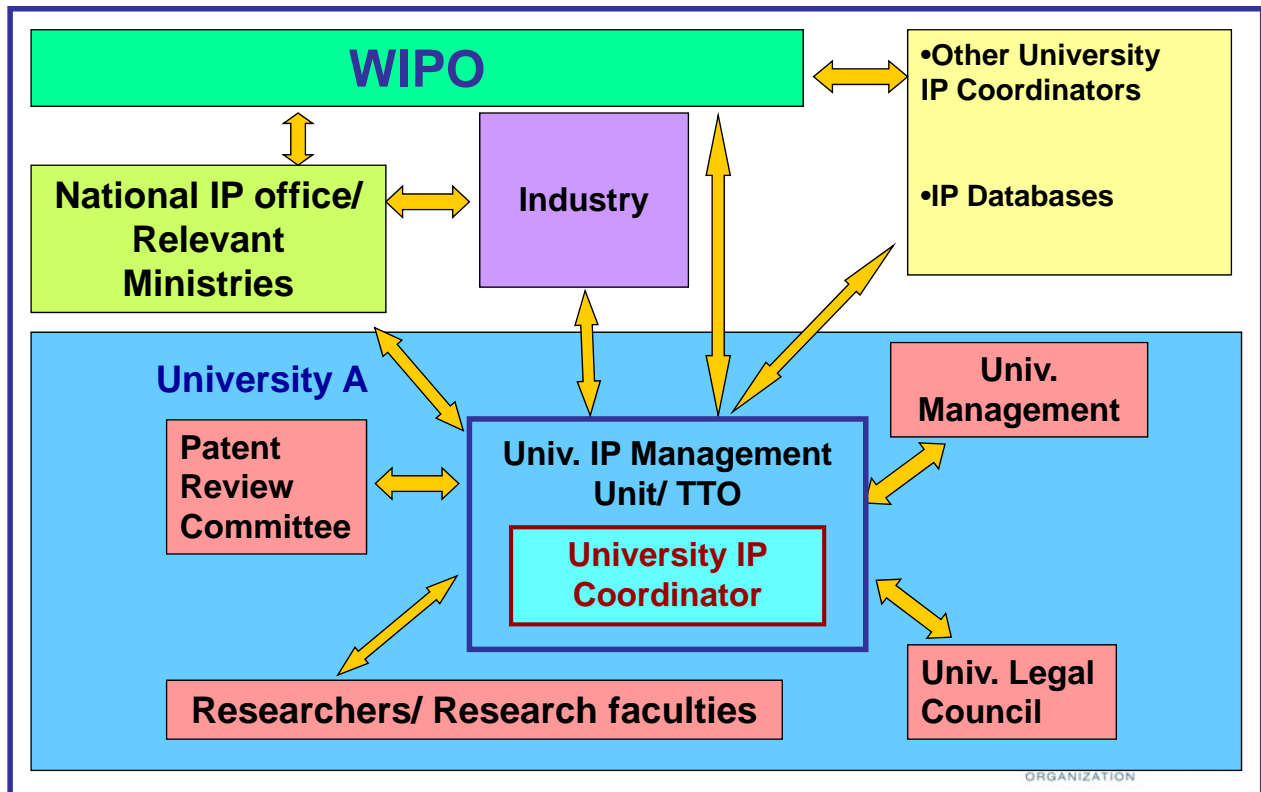
Implementation of Action Plan

- WIPO will assist in the implementation process
- Observing progress
- Individual communications with UIPCs
- Individual advice and assistance
- Activity report
- Assistance in organizing trainings

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WIPO University Initiative Infrastructure



Assistance from National IP Offices (IPO)

- **Designation of a focal point within the IPO**
- **Provision of information**
 - National legislation texts and updates
 - Awareness material
 - Methodological support
 - Lists of:
 - Local patent agents
 - Local IP related NGOs
- **National IP training**
- **Assistance during patent filing procedures**

WIPO Support

In the framework of WIPO University Initiative Program

- Development of guidebooks/ training tools/ manuals/ case studies
- WIPO Publications
- Review of Institutional IP Policies
- WIPO Distance Learning programs + scholarships
- UIPC web page/ WIPO TT Portal
- Regular value-added information and communications
- Customized and individual needs assessment
- Customized training and seminars
- Invitation to certain conferences/ meetings/ seminars
- Developing guidebooks/ manuals/case studies assisting effective IP and technology management
- E-Newsletter
- Electronic Forum
- Networking (among UIPCs, regional and global)
- Collaboration with Partner Organizations (IPOs, AUTM, PIPRA, UNESCO, ICTP etc.)



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Training Program:

IP and Technology Management for Universities and R&D Institutions

Tools and Guidebook:

- IP Policy and Technology Management Procedures for Universities and R&D Institutions**
- University Commercialization Success Stories**



Innovation Division Other Training Programs

- Innovation Policy**
- Patent Drafting**
- Technology Licensing**
- Technology Marketing**
- IP Valuation**



Development Assistance

- National Innovation Policy**
- (University) IP Auditing**
- Institutional IP Policy**
- Setting-up TTO**

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WIPO web site:

www.wipo.int

WIPO University Initiative web site:

www.wipo.int/uipc/en

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Useful links

<http://www.wipo.int/patentscope/en/>

<http://ep.espacenet.com/>

<http://www.piug.org/vendors.php>

<http://www.wipo.int/classifications/ipc>

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 **Thank you for your attention**