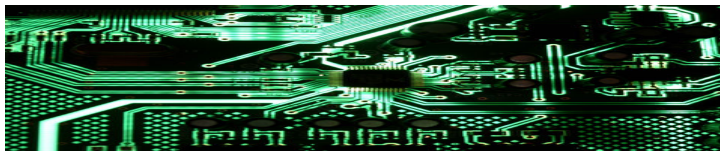


University IP and Technology Management

Yumiko Hamano
WIPO University Initiative Program
Innovation Division
WIPO

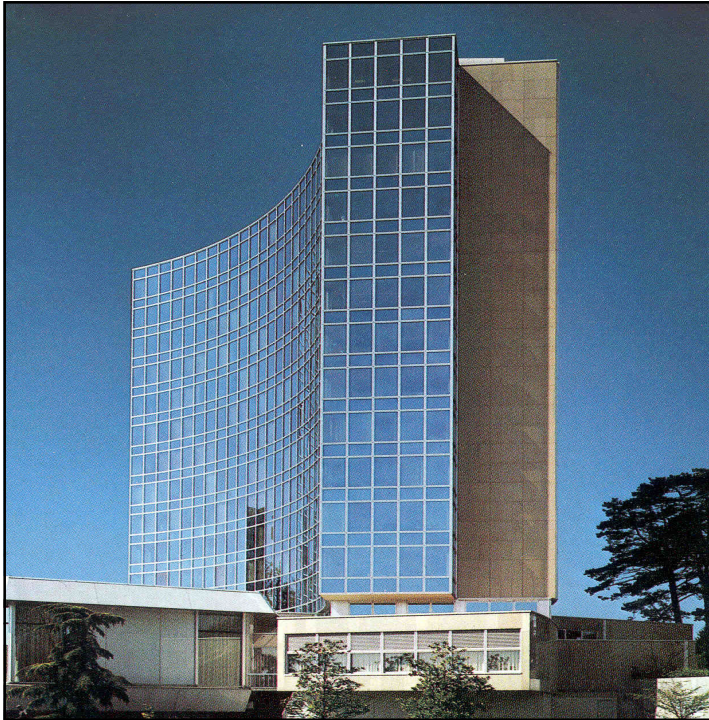
Outline

- WIPO Overview
- IP and Innovation
- University IP and Technology Management
- Institutional IP Policy





Overview of WIPO



Promoting innovation and creativity for the economic, social and cultural development of all countries, through a balanced and effective IP system.



WIPO

- One of 16 United Nations Specialized Agencies
- Dedicated to developing balanced and accessible intellectual property systems that encourage and reward creativity and contribute to the economic and cultural growth to the benefit of human kind.
- Headquarters located in Geneva, Switzerland
- 184 Member States
- Administration of 24 international treaties
- Some 1,500 employees

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WIPO < Core Activities >

- Promoting understanding of IP and realizing its development potential
- Legal and technical assistance and capacity building
- Facilitating development of IP law and harmonization of it
- Harmonizing national IP legislation and procedures
- Providing services for international applications for industrial property rights
- Facilitating dissemination and exchange of IP information
- Facilitating the resolution of private IP disputes

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IP and Innovation

What Are IP Assets?

Creations of the mind:

1. Industrial property

- patents (inventions)
- utility models
- trade secret
- trademarks
- industrial designs
- geographic indications
- new plant varieties

2. Copyrights

IP Assets

International Law of IP

- Paris Convention
- Patent Cooperation Treaty (PCT)
- TRIPS Agreement – administered by WTO
- Madrid Agreement (trademarks)
- Hague Agreement (industrial designs)
- Berne Convention (copyrights)
- WIPO Internet Treaties

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Fortune 500 Companies

>80% of market value = their intangible assets

Intangible assets

(knowledge based assets)

e.g.

- Patents
- Trademarks
- Brand

>

Tangible assets

(physical assets)

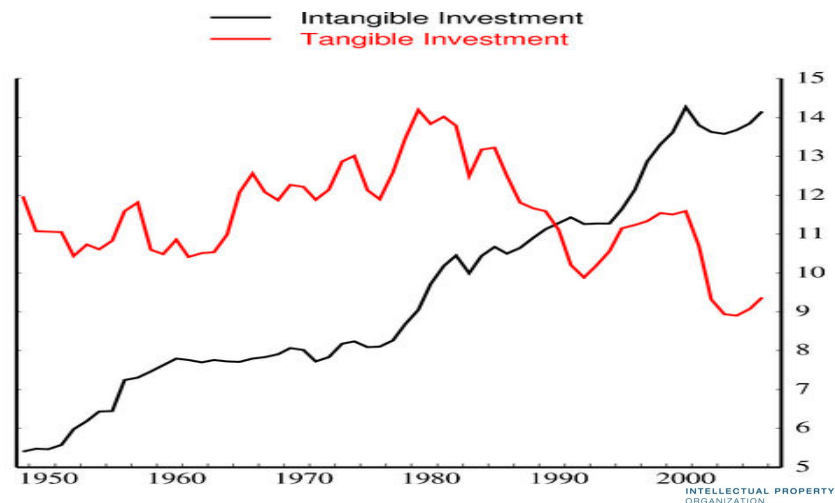
e.g.

- Real estate
- Equipment
- Cash

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Business investment in the US: tangible vs. intangible investment (% business output)



Source: Corrado, Hulten and Sichel (2005, 2006)

Innovation and Economic Growth

The creativity and inventiveness of our people is our country's greatest asset and has always underpinned the UK's economic success.

But in an increasingly global world, our ability to invent, design and manufacture the goods and services that people want is more vital to our future prosperity than ever.

Innovation, the exploitation of new ideas, is absolutely essential to safeguard and deliver high-quality jobs, successful businesses, better products and services for our consumers, and new, more environmentally friendly processes.

Tony Blair, Former UK Prime Minister

Innovation Report 2003

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Industry Strategies

R&D Budget Increase

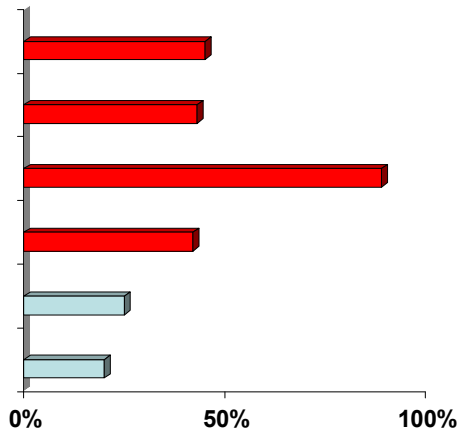
R&D Staff Increase

Joint R&D with JP Univ.

Joint R&D with Overseas Univ.

Joint Venture

Others



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Source: Nikkei 2005

Economic Benefits of IP

Macroeconomic level

- Increase GDP and competitiveness
- Enhance exports of high value
- Stimulate R&D
- Technological advancement
- Reduce brain drain by providing incentives
- Help address national human needs
- Develop national brand and cultural identity and reputation
- Attract beneficial FDI and local investment
- Job creation

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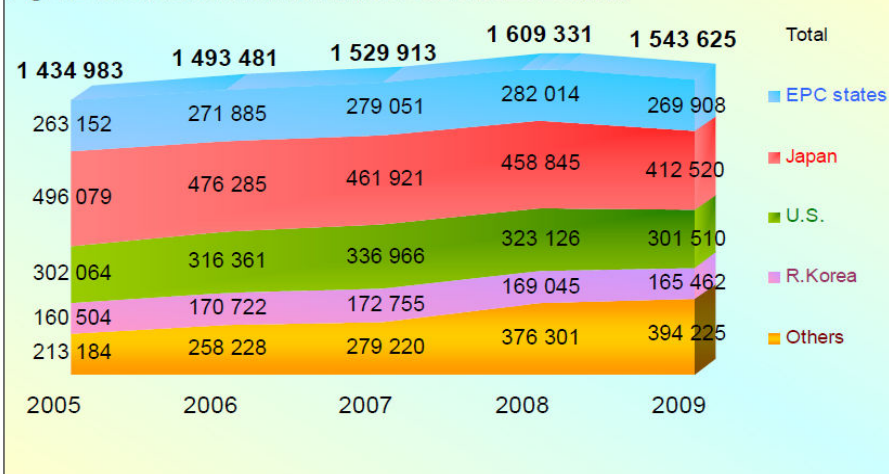
Economic Benefits of IP

Microeconomic level

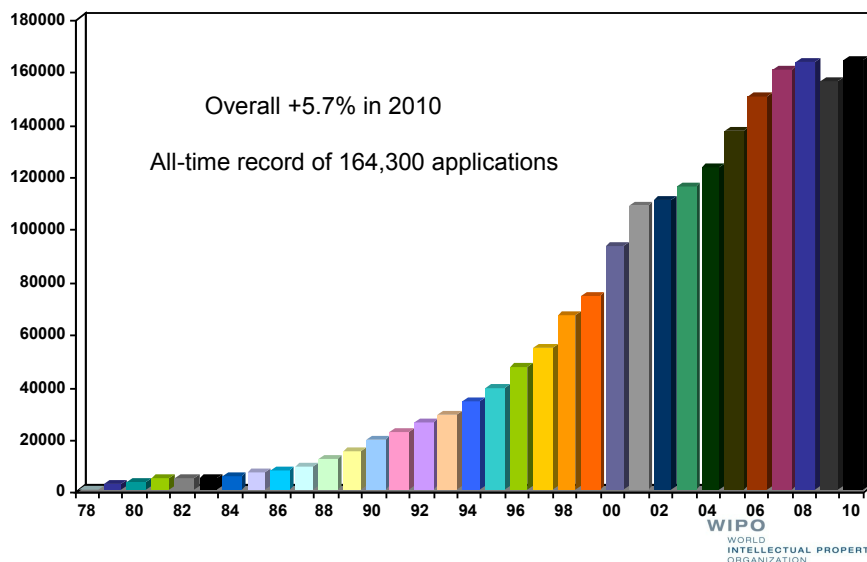
- Create portfolios of IP as a source of competitive advantage
- Enhance products and promote brand value
- Enhance corporate value
- Avoid and defend against litigation
- Provide incentives and recognition of creativity

Worldwide Patent Filing

Fig. 3.2 WORLDWIDE PATENT FILINGS BY BLOC OF ORIGIN



PCT Statistics



Growing Technology Transfer Activities from University

Example: US in 2010

- \$53.9 billion R&D expenditures
- 20,309 invention disclosures
- 4,284 total licenses and 1078 options executed
- 38,528 current valid licenses and options from Universities to Companies
- 657 new products introduced into the market
- 3,417 patents from univ. issued
- 651 new start-ups (498 of which have business in the licensing institution's home state)
- 3,657 startup companies still operating as of the end of FY2009

Source: AUTM U.S. Licensing Activity Survey Summary: FY2010

http://www.autm.net/AM/Template.cfm?Section=FY_2010_Licensing_Survey&Template=/CM/ContentDisplay.cfm&ContentID=6874

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Research Expenditures

Example: US in 2010

- \$59.1 billion R&D expenditures
- \$39.1 billion federally funded R&D expenditures
- \$4.3 billion industry funded R&D expenditures

Source: AUTM U.S. Licensing Activity Survey Summary: FY2010

http://www.autm.net/AM/Template.cfm?Section=FY_2010_Licensing_Survey&Template=/CM/ContentDisplay.cfm&ContentID=6874

IP Creation

Example: US in 2010

- 20,642 invention disclosures
- 18,712 total US patent applications
- 12,281 new US patent applications
- 1,116 non-US patent applications
- 4,469 US patents issued

Source: AUTM U.S. Licensing Activity Survey Summary: FY2010

http://www.autm.net/AM/Template.cfm?Section=FY_2010_Licensing_Survey&Template=/CM/ContentDisplay.cfm&ContentID=6874

Licensing income

Example: US in 2010

- Total income: \$2.4 billion
- Running royalty: \$1.4 billion
- Cash-in equity: \$63.4 M
- Other income: \$452.3 M

Source: AUTM U.S. Licensing Activity Survey Summary: FY2010

http://www.autm.net/AM/Template.cfm?Section=FY_2010_Licensing_Survey&Template=/CM/ContentDisplay.cfm&ContentID=6874

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Change in Legal Framework

US - Bayh Dole Act (1980)

The Bayh-Dole Act allows the transfer of *exclusive* control over inventions generated from government funded researches to universities

Abolition of the Professor's privilege

Germany: 2001 Reform of Employee Law

Austria: 2002

Denmark: 2002 Act on Inventions at Public Research Institutions

University Law

Japan:

1995 Basic Law of Science and Technology

1998 Law promoting tech. transfer from universities

1999 Japanese version of Bayh Dole Act

2000 Law facilitating univ.-industry collaboration

2004 Change in legal status of public universities (semi-autonomous institutions)

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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



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University IP and Technology Management

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

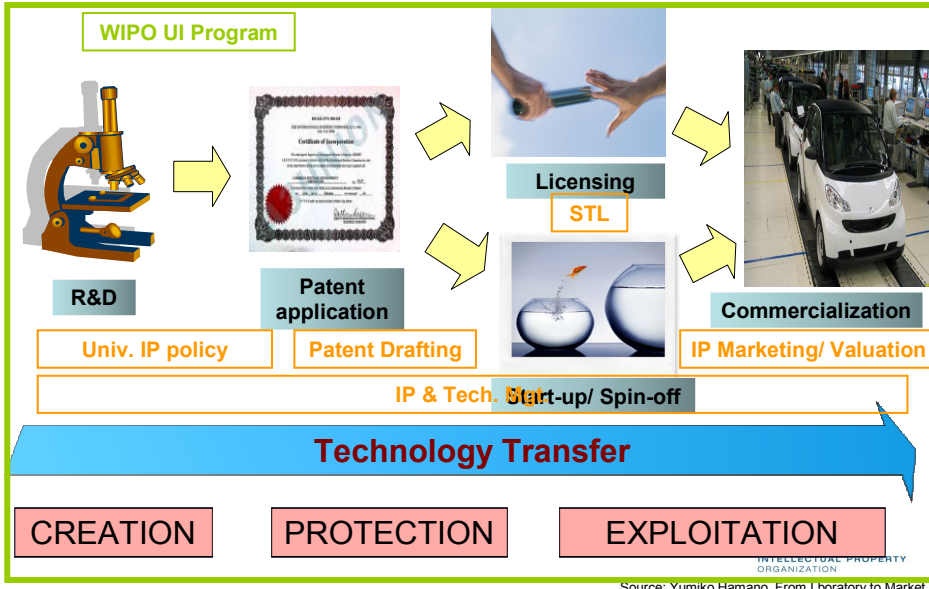
Universities should identify, protect, manage, utilize and profit from IP rights in the fields of :

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

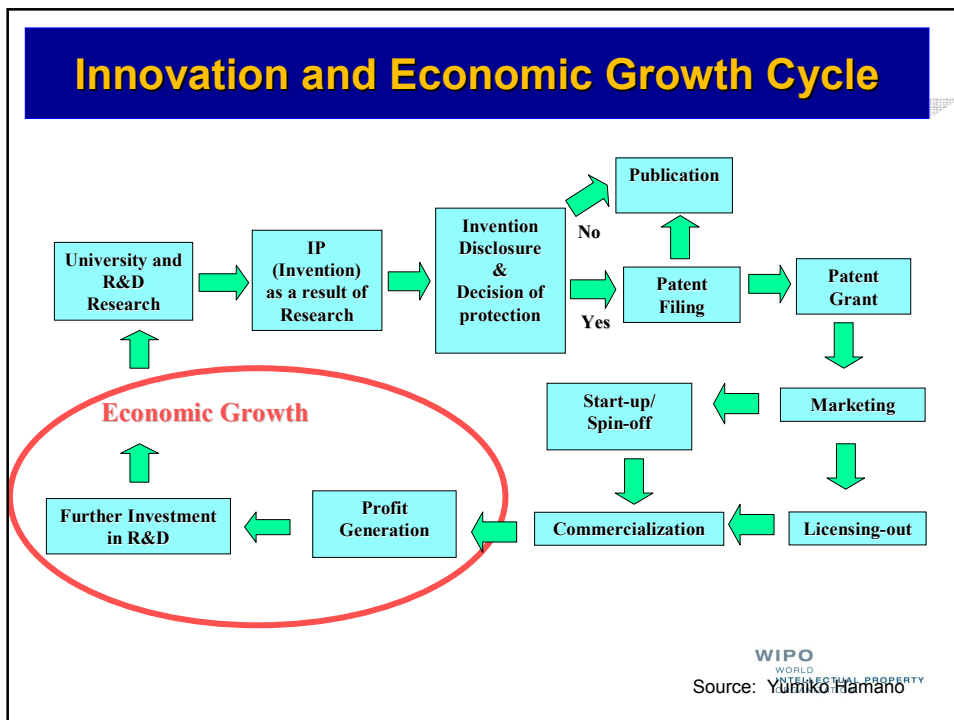


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From Laboratory to Market



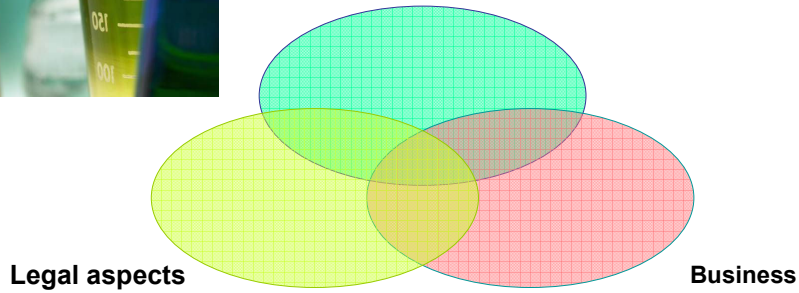
Innovation and Economic Growth Cycle





IP and Technology Management

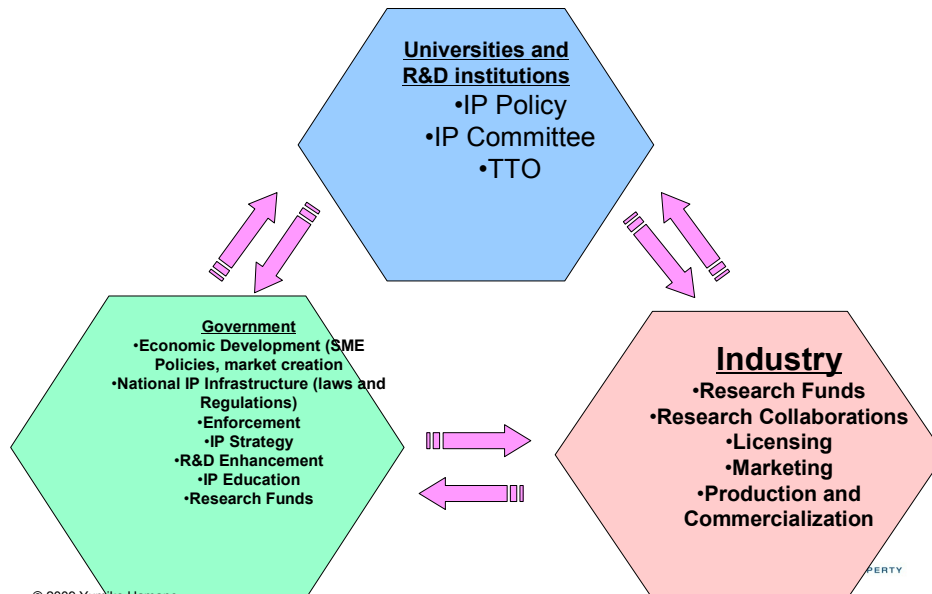
Technology Management



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University-Industry Collaboration Infrastructure



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IP and Technology Mgt. Key Issues

- R&D Management
- Invention Disclosure Process
- Patent Information Search
- Ownership
- Benefit Sharing
- Collaboration with Industry
- Contracts and Agreements
- Government Rights
- Roles of Technology Transfer Office
- Commercialization Process
- Patent filing
- Costs (prototype, patent filing, attorney's fee etc.)
- Conflict and interest
- Incentive

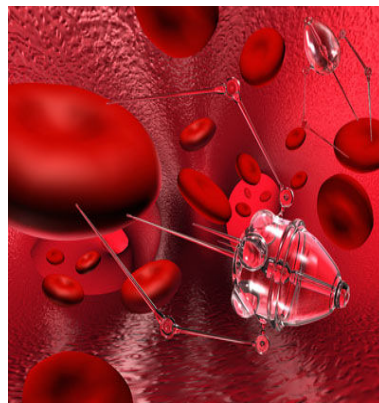
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Invention Disclosure

Invention Disclosure Form

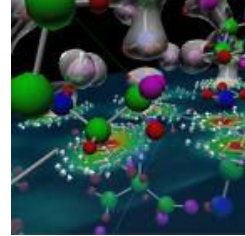
- Name of person completing and submitting this form:
 - Work phone number:
 - Fax number:
- TITLE OF THE INVENTION:
- CONCEPTION OF INVENTION
 - Date and place of conception
- TECHNOLOGY DESCRIPTION
- Prior Art
- INVENTOR(S)
 - INVENTOR :
 - Name:
 - Residence Address:
 - Citizenship:
 - Telephone Number:
 - Email address
- Signature



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IP Management in Universities

1. **Infrastructure**
 - Establishment of an TTO
 - IP Policies
 - R&D planning/strategy
 - Research funding
2. **Capacity Building**
 - IP & technology Mgt. training
3. **Protection of IPR**
 - Identification of IP
 - Invention disclosure
 - Evaluation of technology
 - Patent application procedures
 - Patent Information search
 - Legal matters
 - Administration of legal issues
4. **Exploitation of IPR**
 - IP/ tech. Marketing
 - IP valuation
 - Licensing negotiation and monitoring deals
 - Commercialization
 - Incubation of start-up/ spin-off
 - Collaboration with industry



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Who Manages IP and Technology

- IP Unit
- Technology transfer offices
- University holding company
- Business incubation services
- Technology scouting enterprises and other private TT services
- Science park
- Government institutions

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Incentive Scheme

How should universities and R&D institutions encourage and motivate scientists/ researchers?

Training on IP knowledge

- Capacity building
- Involvement of scientists/ researchers in the process of IP and technology management

Financial compensation

- Fixed percentage of royalties
- lump sum
- Inventor's award

Personal program

- Promotion scheme
- Framed certificate of inventors
- Dinner with dean/ the senior management of university thanking inventor/ research team

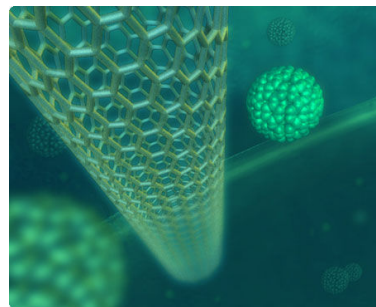
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Conflict of Interest

How are conflicts of interest and commitment handled?

- Mandate of universities vs. those of industries
- Social Concern
- Institutional Concern
- Individual concern



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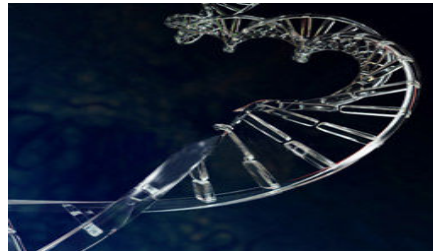
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Institutional IP Policy

Institutional IP Policy

IP Policy:

Principles of actions adopted by an organization or an individual – often legal implication



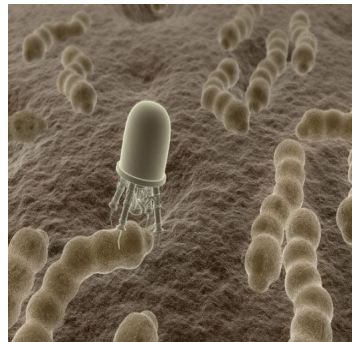
Institutional IP Policy

- What are an institution's high-level objectives regarding its intellectual property assets?
- Why does an institution engage in patenting and licensing?
- How does an institution manage conflicting objectives?

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Who the IP Policy Applied to?

- **All university staff (i.e. the management professors , researchers, students and IP management units)**
- **Governments**
- **Partner Industries**
- **Partner universities**
- **Public**



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Institutional IP Policy

■ An intellectual property policy can help define and articulate an institution's goals and values regarding intellectual assets

- Maximizing public benefit
- Promoting technology transfer
- Obtaining licensing revenues
- Ensuring academic freedom
- Enhancing student educational opportunities
- Maintaining contractual/statutory obligations

Importance of IP Policy

IP Policy provides:

- Clear rules and guidelines for research operations
- The legal framework for commercialization
- Guidance for IP and technology management procedures
- Clear policy on ownership criteria and benefit sharing
- Consistency of approach (in a systematic manner) – e.g. invention disclosure, decision on patent filing, distribution of benefit etc.)
- Transparency in decision making process
- Objectivity in measurement
- Researchers with incentive
- Balance between conflicting interest of various stakeholders

and fosters:

- Transfer of technology generated in the university
- Innovation and creativity in the university
- (Local) economic growth

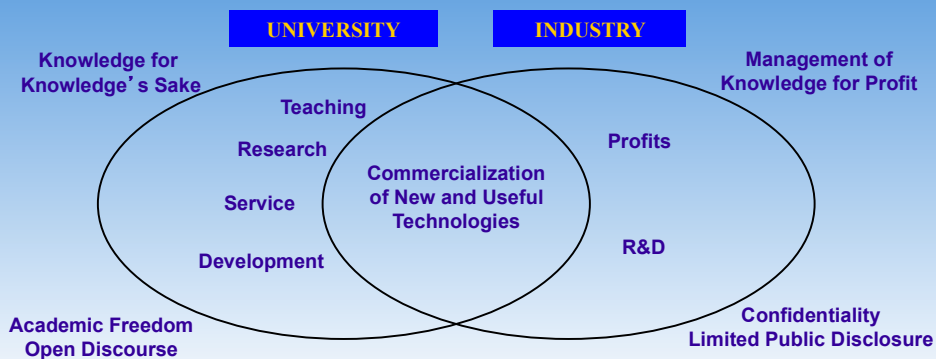
Major Challenges to commercialize R&D results

- 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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Addressing Conflicting Values and Common Interest



Source: Louis P. Berneman, 1999

Necessary Ingredients

Marketable
Technologies

Funds

HR with Right Skills

Infrastructure

Networking/
Collaboration

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Information on PCT

PCT Applicant Guide

www.wipo.int/pct/guide/en/index.html

PCT Newsletter

www.wipo.int/en/newsletter/index.jsp

PCT Gazette

www.wipo.int/pct/fr/gazette/

PCT on WIPO webpage

www.wipo.int

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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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WIPO web site:

www.wipo.int

WIPO University Initiative web site:

www.wipo.int/uipc/en

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Thank you for your attention

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