



# University IP and Technology Management

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# Outline

- **WIPO Overview**
- **IP and Innovation**
- **University IP and Technology Management**
- **Institutional IP Policy**
- **Technology Management Key Issues**





**WIPO**  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION



# 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**

# 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**

# 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**

# Fortune 500 Companies

>80% of market value = their intangible assets

## Intangible assets

(knowledge based assets)

e.g.

- Patents
- Trademarks
- Brand

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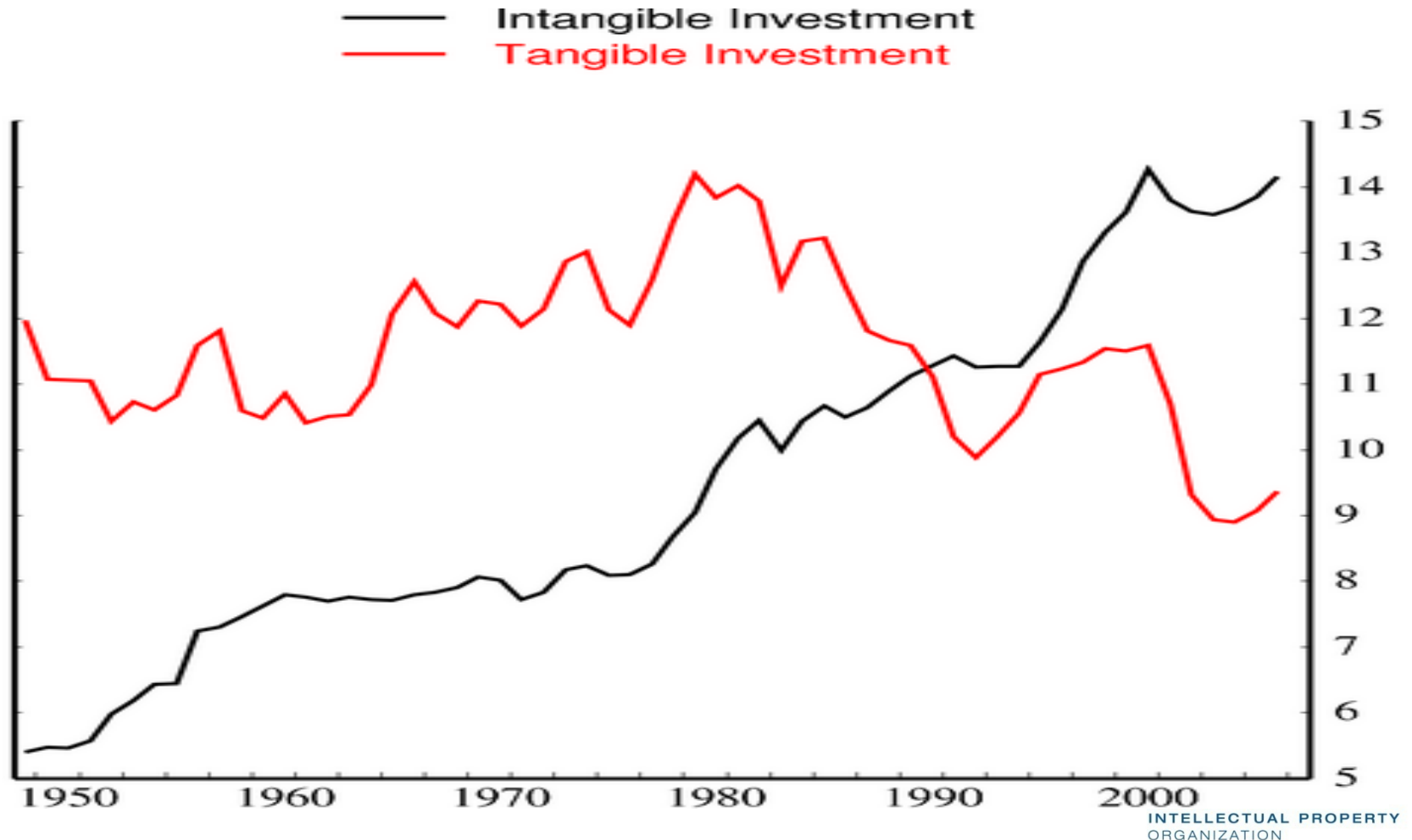
## Tangible assets

(physical assets)

e.g.

- Real estate
- Equipment
- Cash

# 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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R&D-intensive producers and  
knowledge-intensive service providers in  
2002 made up one third of economic  
output in G6 and EU-15

**Sources: Corrado, US Federal Reserve Board (2007); Hofmann, DB  
Research (2006); Tojo, OECD (2008)**

# 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
- Attract beneficial FDI and local investment
- Job creation

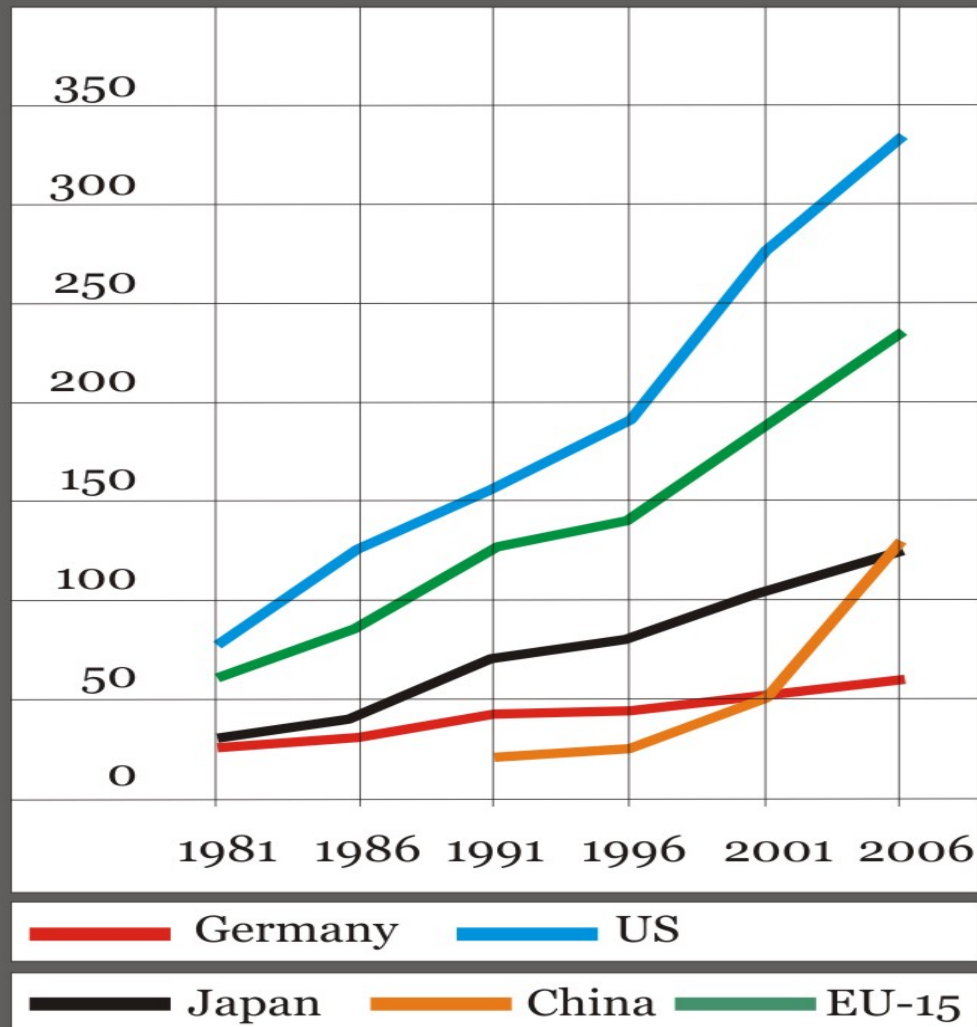
# Economic Benefits of IP

## Microeconomic level

- **Create strong IP portfolio 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**



## Gross domestic expenditure on R&D (\$Bn, current PPP) 1981-2006



Source: OECD<sup>19</sup>

# Industry Strategies

**R&D Budget Increase**

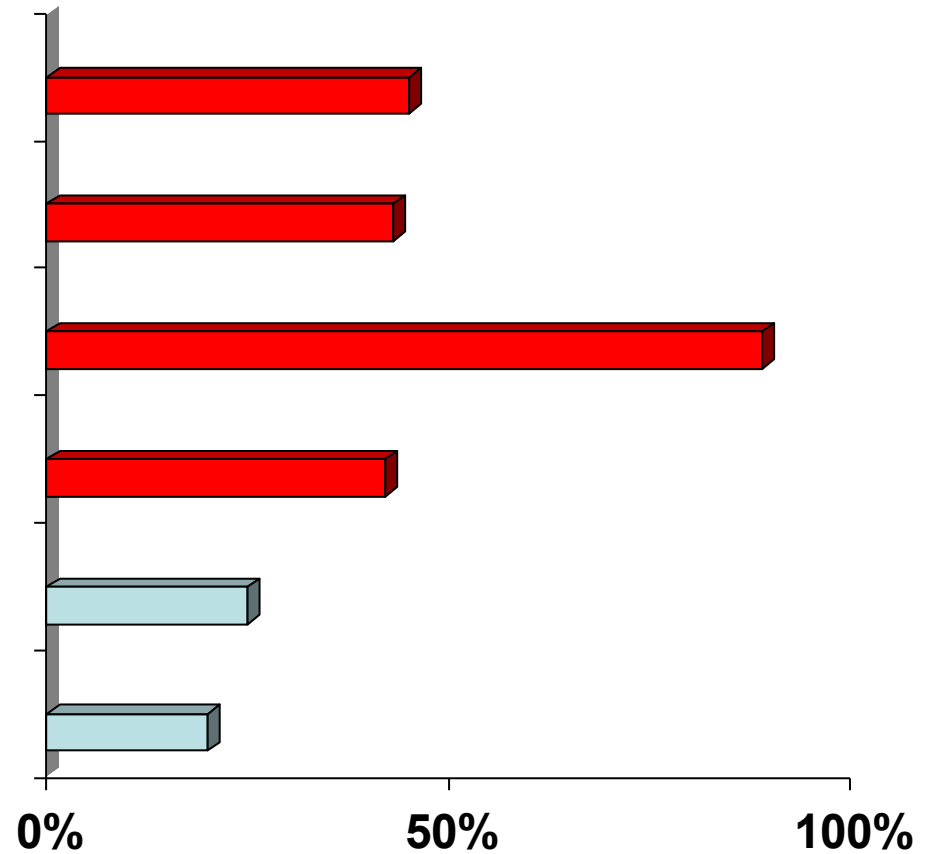
**R&D Staff Increase**

**Joint R&D with JP Univ.**

**Joint R&D with Overseas Univ.**

**Joint Venture**

**Others**



WORLD

Source: Nikkei 2005

# Growing Technology Transfer Activities from University

## Example: US in 2009

- \$53.9 billion R&D expenditures
- 20,309 invention disclosures
- 5,328 total licenses and options executed, 4,374 of which were licenses
- 13,600 current valid licenses from Universities to Companies
- 658 new products introduced into the market
- 3,417 patents from univ. issued
- 596 new start-ups (435 of which have business in the licensing institution's home state)
- 3,423 startup companies still operating as of the end of FY2009

Source: AUTM U.S. Licensing Activity Survey Summary: FY2009

# 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)

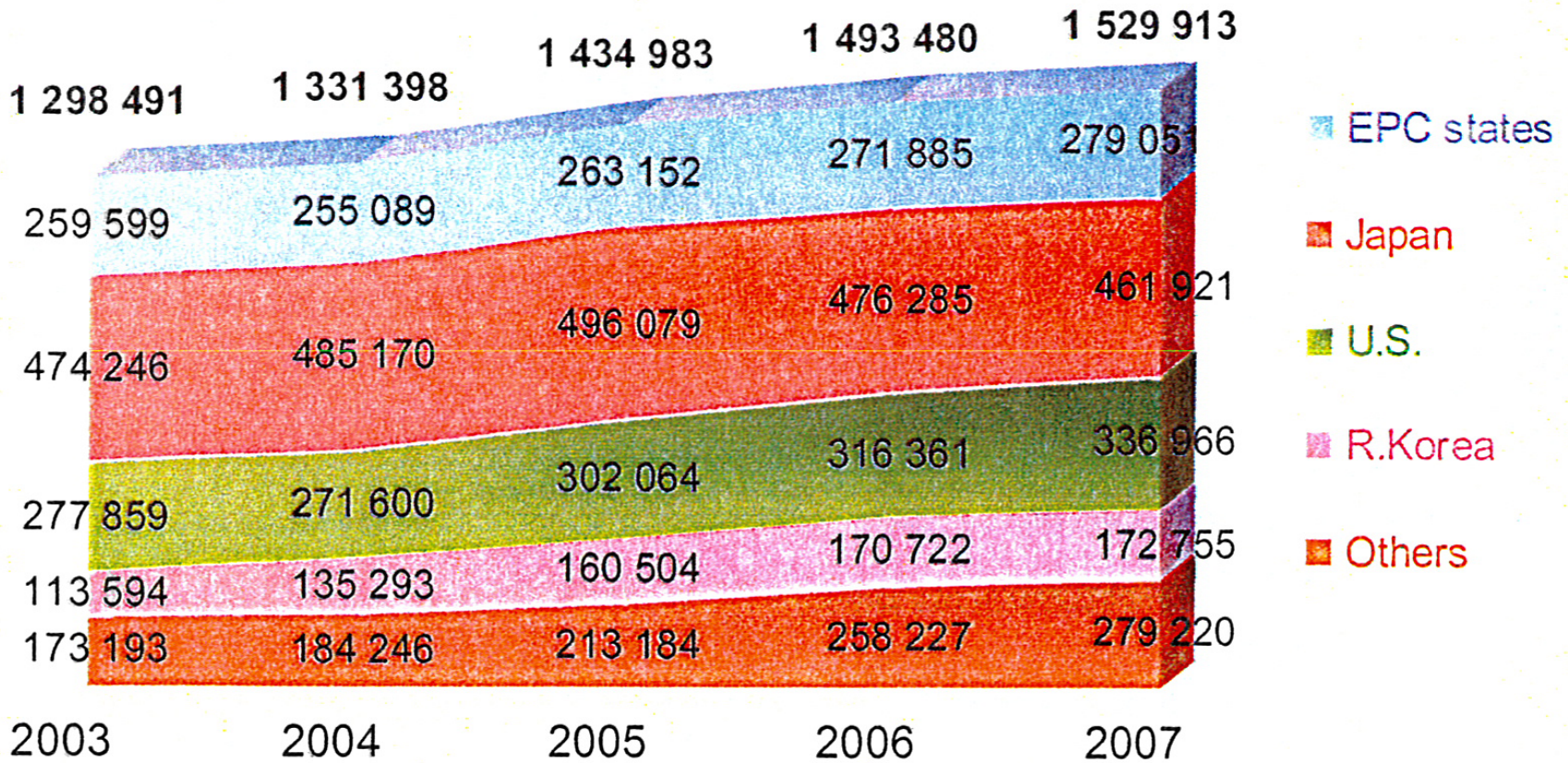


# Globalization

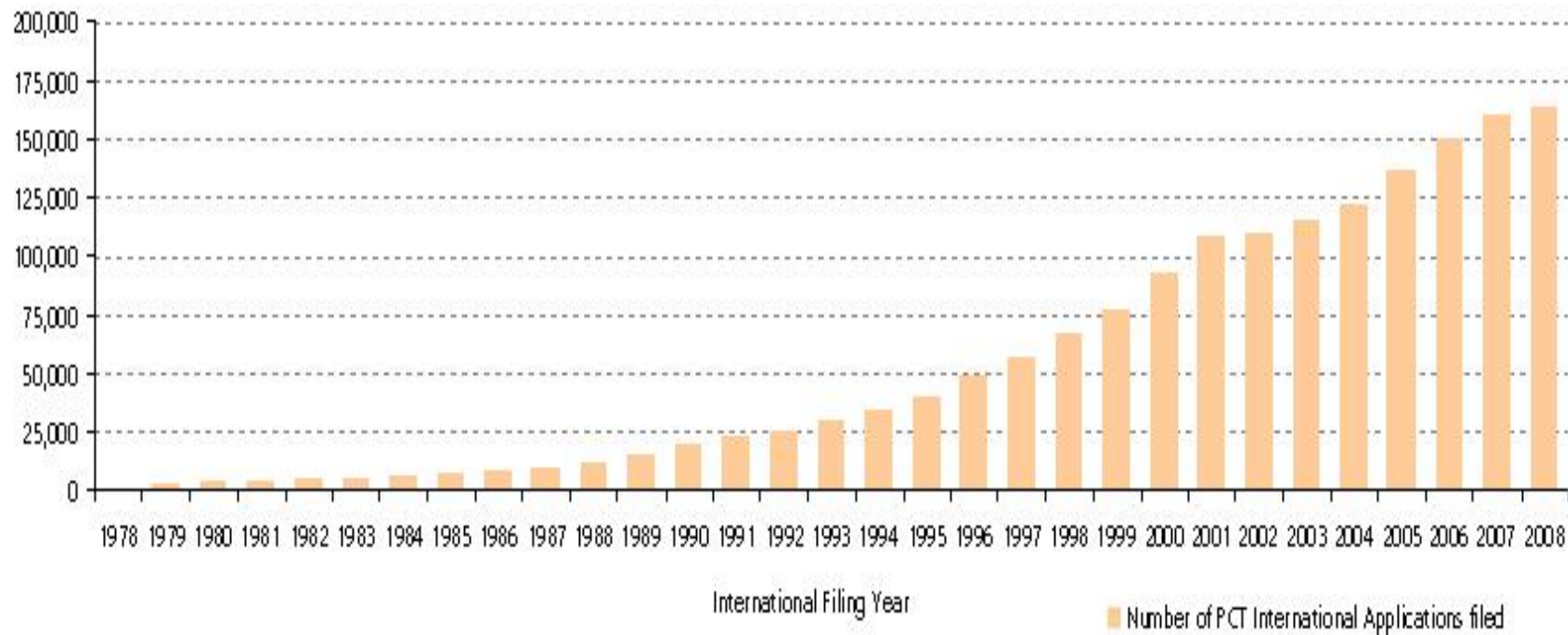
- **Internet → Easy access to information**
- **Global market**
- **More competition**
- **Need to improve efficiency**
- **Need to improve quality**
- **Fast technology cycle**
- **Technology interdependency → Need to collaborate**
- **Intangible assets**
- **Knowledge based economy**

# Worldwide Patent Filing

Fig. 3.2 WORLDWIDE PATENT FILINGS BY BLOC OF ORIGIN



# PCT Applications



Source: WIPO Statistics Database

# 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



# 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

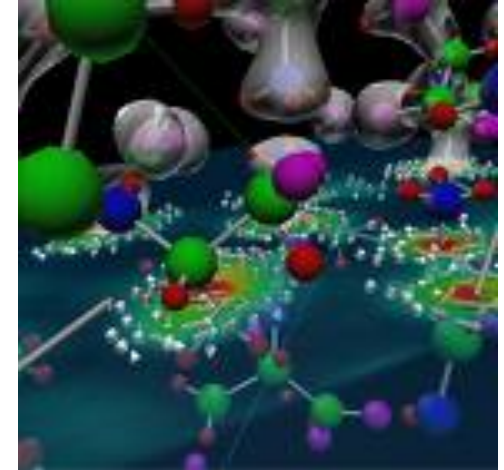


# Stakeholders

- **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**

# IP Management in Universities

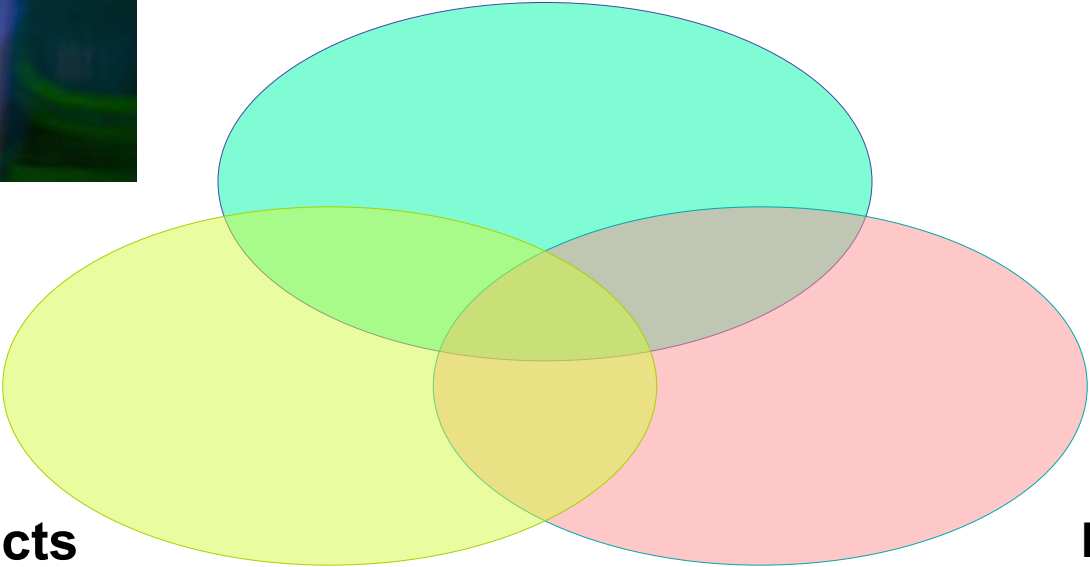
1. **Infrastructure**
  - Establishment of an TTO
  - IP Policies
  - R&D planning/strategy
  - Research funding
2. **Capacity Building**
  - IP training
3. **Protection of IPR**
  - Identification of IP
  - Invention disclosure
  - Patent application procedures
  - Patent Information search
  - Legal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





# IP and Technology Management

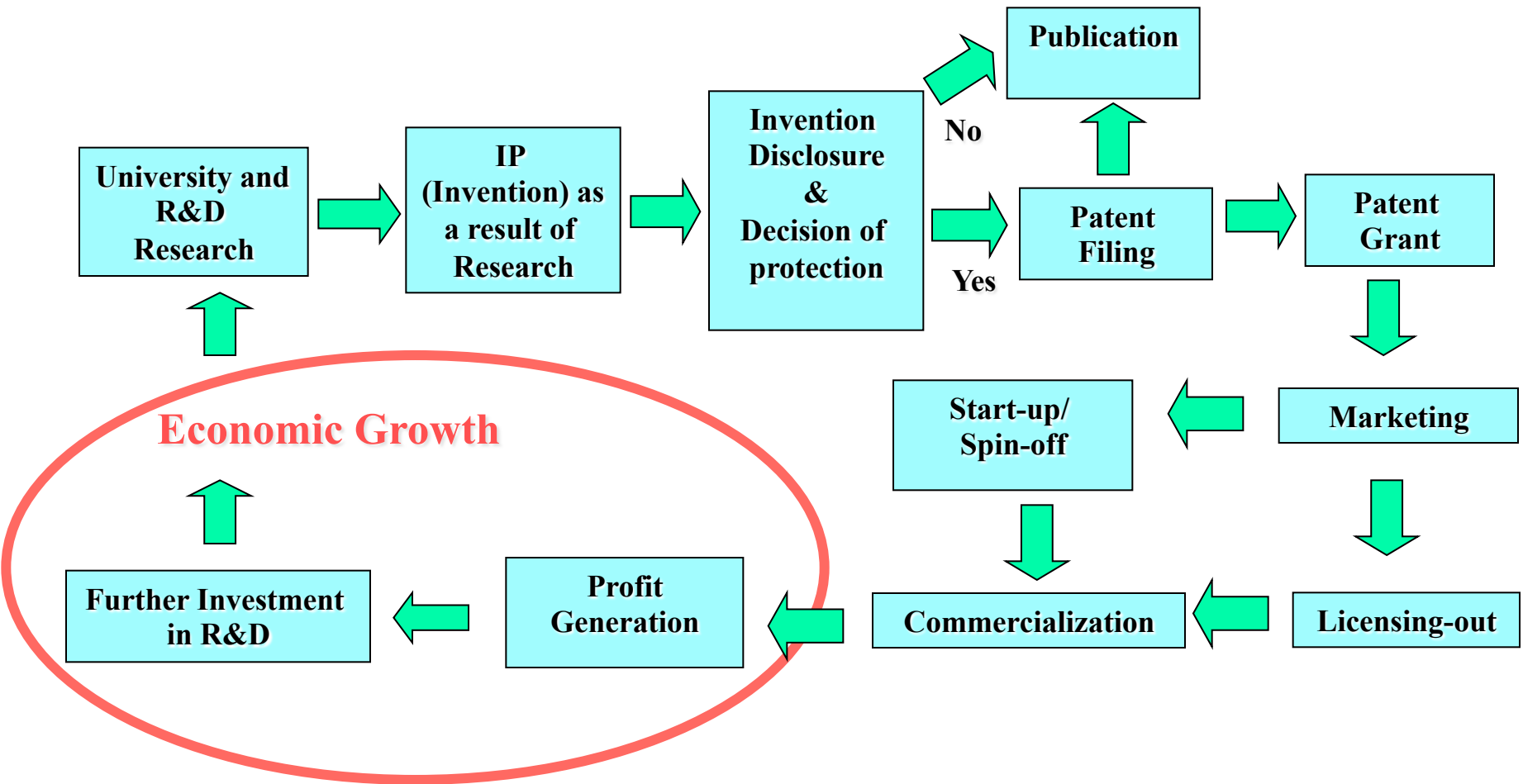
**Technology Management**



**Legal aspects**

**Business**

# Innovation and Economic Growth Cycle

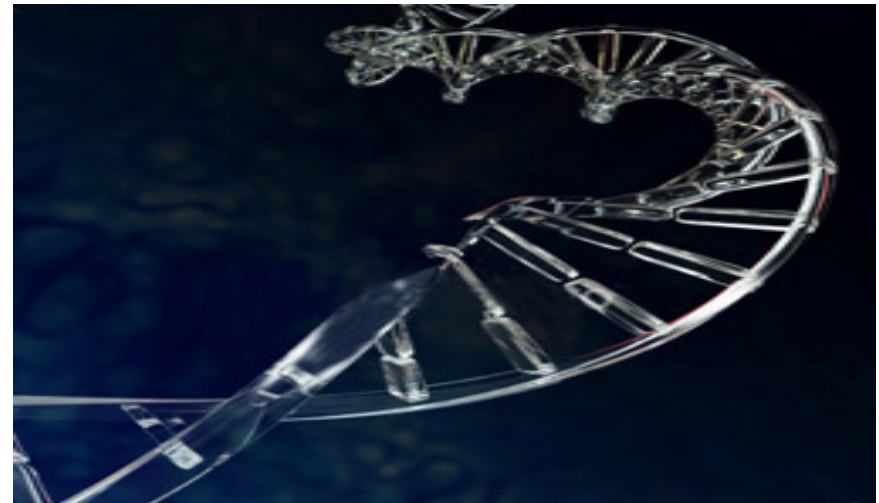




# Institutional IP Policy

## IP Policy:

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



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# Importance of IP Policy

## **IP Policy provides:**

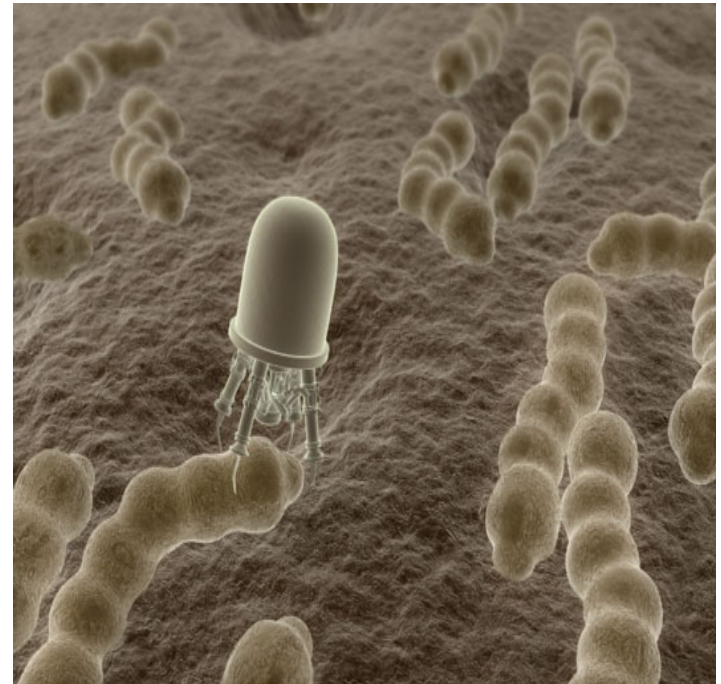
- **Clear rules and guidelines for research operations**
- **The legal framework for commercialization**
- **Guidance for IP and technology management procedures**
- **Clear policy on ownership criteria and benefit sharing**
- **Consistency of approach (in a systematic manner) – e.g. invention disclosure, 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**

# 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**



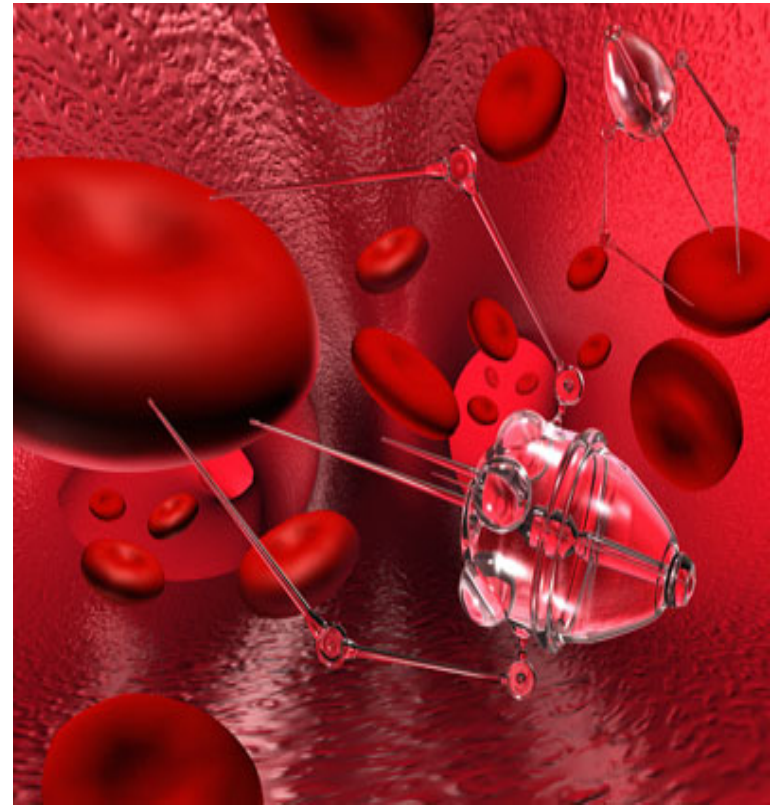
# IP and Technology Mgt. Key Issues

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

# 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





# Invention Disclosure

- Has there been or is there any planned public of the invention. “Public disclosure” means where any public person can gain access to enabling information about the invention via such events as presentation at a conference, publication in a public document, disclosure to an external person without use of a written and signed non-disclosure agreement or putting the invention into public use. “Enabling Information” means that a person with ordinary skill in the art can reproduce the invention.
- At the initial meeting with inventors, a representative of this office will explain the roles and responsibilities of inventors, this office, and (name of institution). The inventors at this initial meeting should be prepared to discuss: (1) details about the invention, how it works, the state of development (reduced to practice?), if future research related to the invention is expected, and the general field of the invention; (2) any background or related art for the invention, (3) to provide any existing written information about the invention, any presentations about the invention, or any drawings, (4) details about any disclosures to any parties (internal or external), any publications planned or in progress, any conference presentations planned, or any other disclosure of information about the invention, and (5) the names of any companies you think might be interested in your invention and names of people in such companies if known.
- By signature below, the inventor(s) agree to assign all rights to the invention to (name of institution) and to abide by all policies, rules, and regulations as set forth in (name of institution) (name of policy handbook setting forth such policies, rules, and regulations)

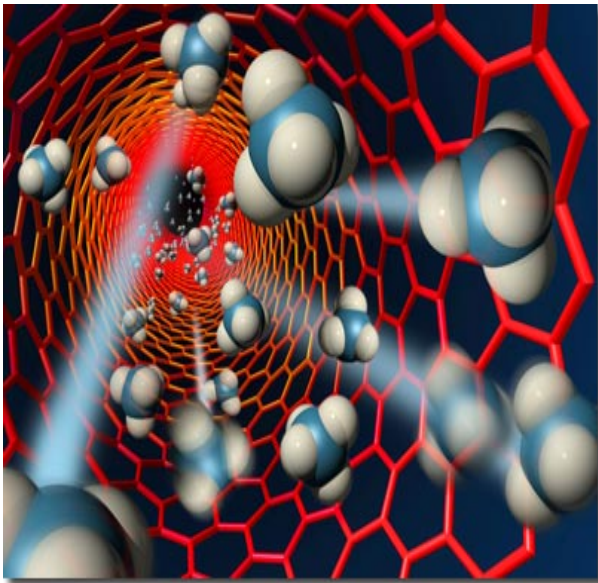
# Ownership

## Who owns IP generated by publicly funded research?

- **Generally national law defines who owns IP (inventions) arising from work conducted for an employer**
- **In some cases, national laws specifically address ownership of inventions arising from publicly sponsored research**
- **Sometimes IP ownership covered in different laws**

# Ownership

- **Government**
- **University**  
(e.g., Germany, Austria, Japan, China, South Korea, UK, France, US, Denmark)
- **Creator/ Faculty**  
(e.g., Sweden, Italy)

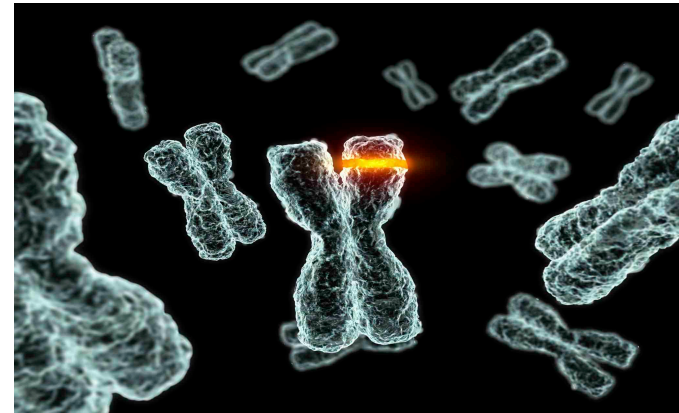


# Benefit Sharing

**How are the revenues from research commercialization shared among faculty, university, government funder and other stakeholders?**

- **The distribution proportions differ by institution**
  - **Inventor**
  - **Faculty**
  - **University**
- **On average,**
  - **Inventor: 25 - 85%**
  - **Faculty: 25 - 30%**
  - **University: 25 - 50%**

**(in many cases, the university provides part of its portion to the TTO (or the administrative unit) and the laboratories of the creator 1/3: 1/3: 1/3 – institution portion often used for funding research )**



# 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

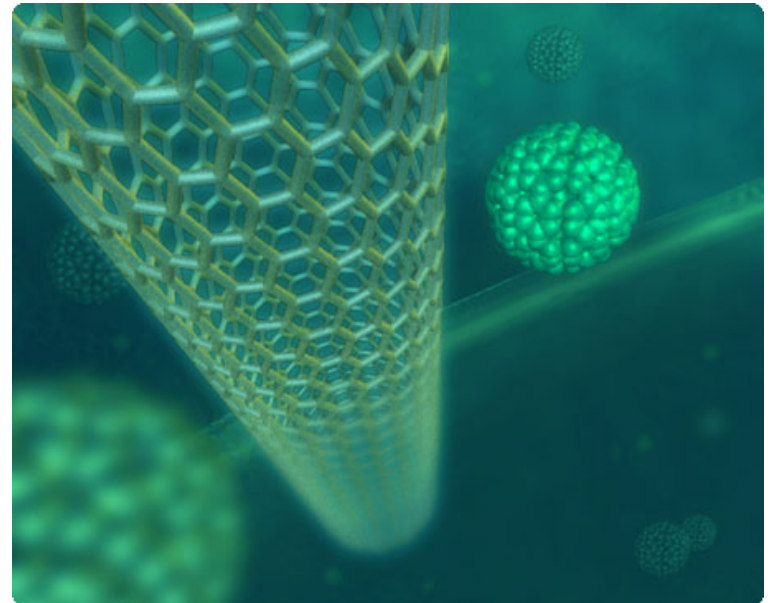
- Promotion scheme
- Framed certificate of inventors
- Dinner with dean/ the senior management of university thanking inventor/ research team



# Conflict of Interest

**How are conflicts of interest and commitment handled?**

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



# 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)



**Thank you for your attention.**