



Building a Competitive Edge: Protecting Inventions by Patents and Utility Models

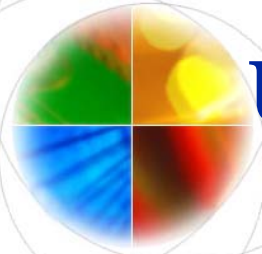
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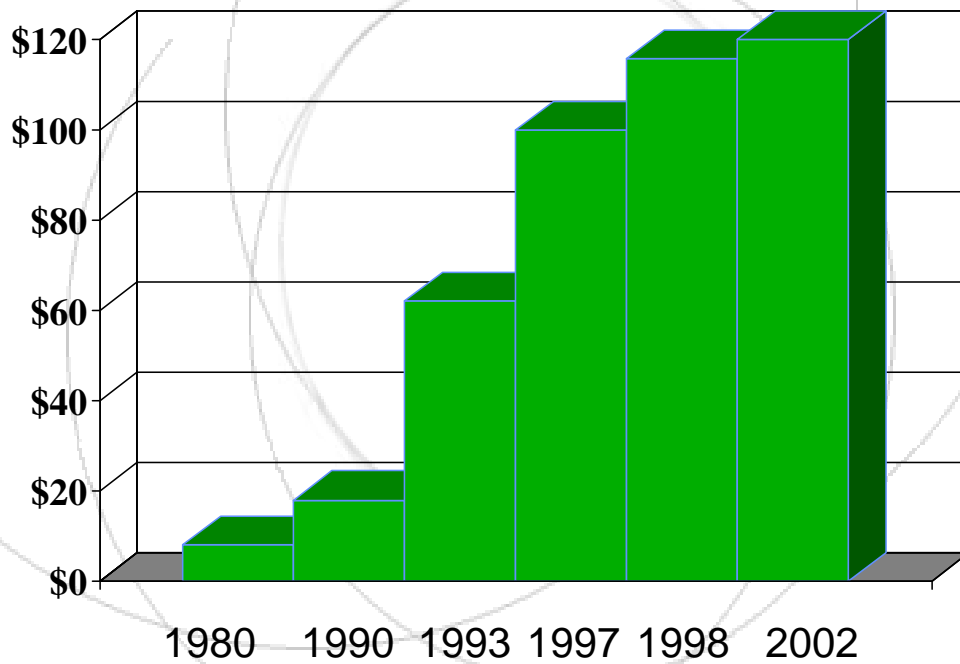


Patents in Today's Economy

- Since mid-1980s the number of patents granted in the USPTO has grown by 6% a year.
- In the EPO, 8.3% annual increase in applications since 1993.
- Growth is particularly high in some sectors such as biotechnology (annual increase 14.3% in EPO)
- “Pro-patent era”



US Patent License Royalties (in billions of US\$)

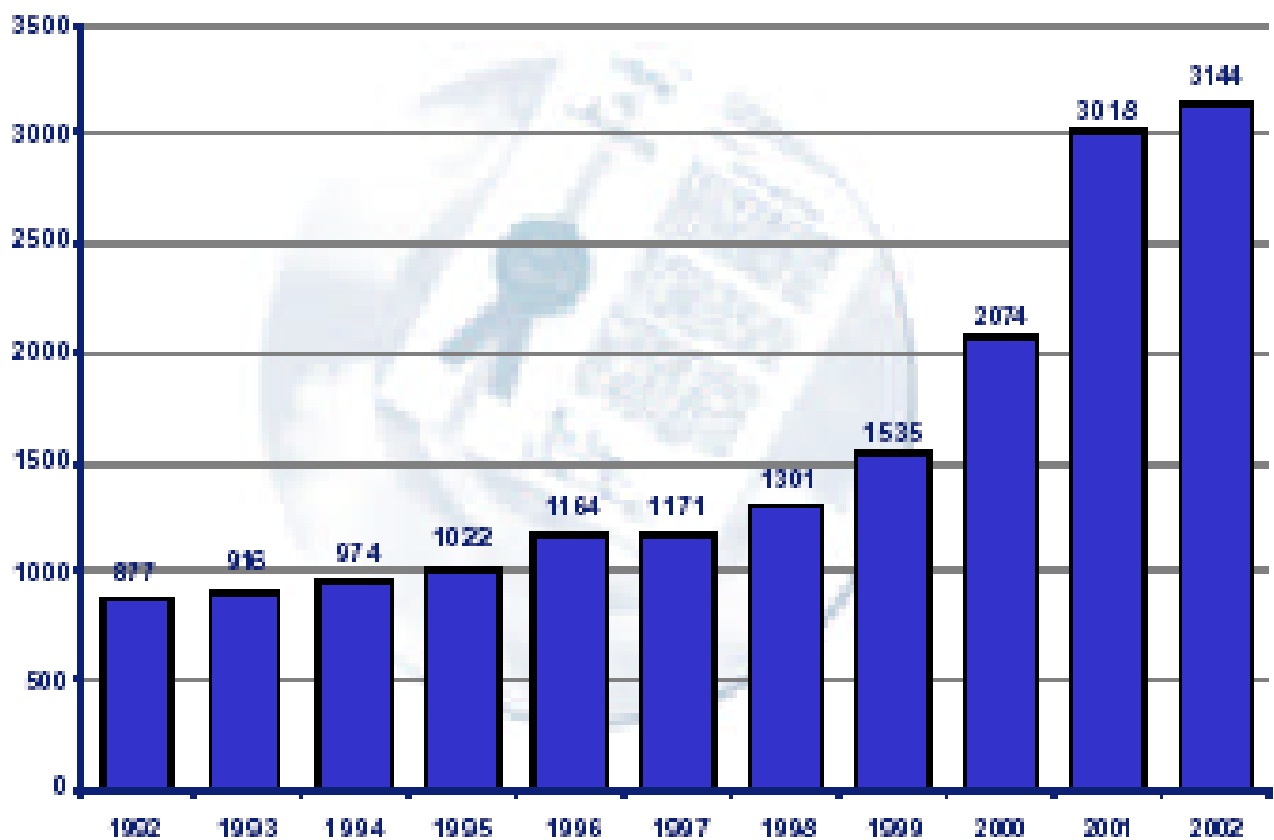




Case study: Philips

- Mid-1990s Philips establishes a unit called Philips IP&S to manage its IP assets and enhance its returns on R&D investments
- 175 IPR professionals in 13 countries
- Total of 95,000 patents
- Based on 20,000 inventions
- Approx. 3,000 new patent applications a year.
- 10% annual increase in royalties from licenses

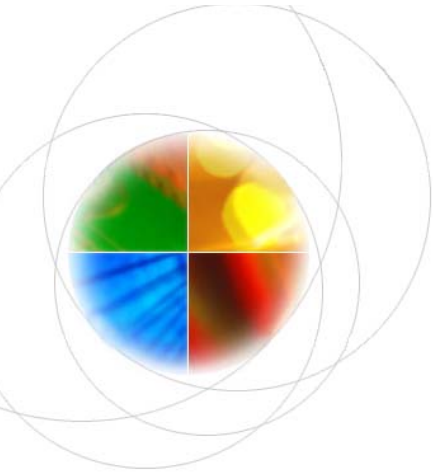
Philips Patent Filings



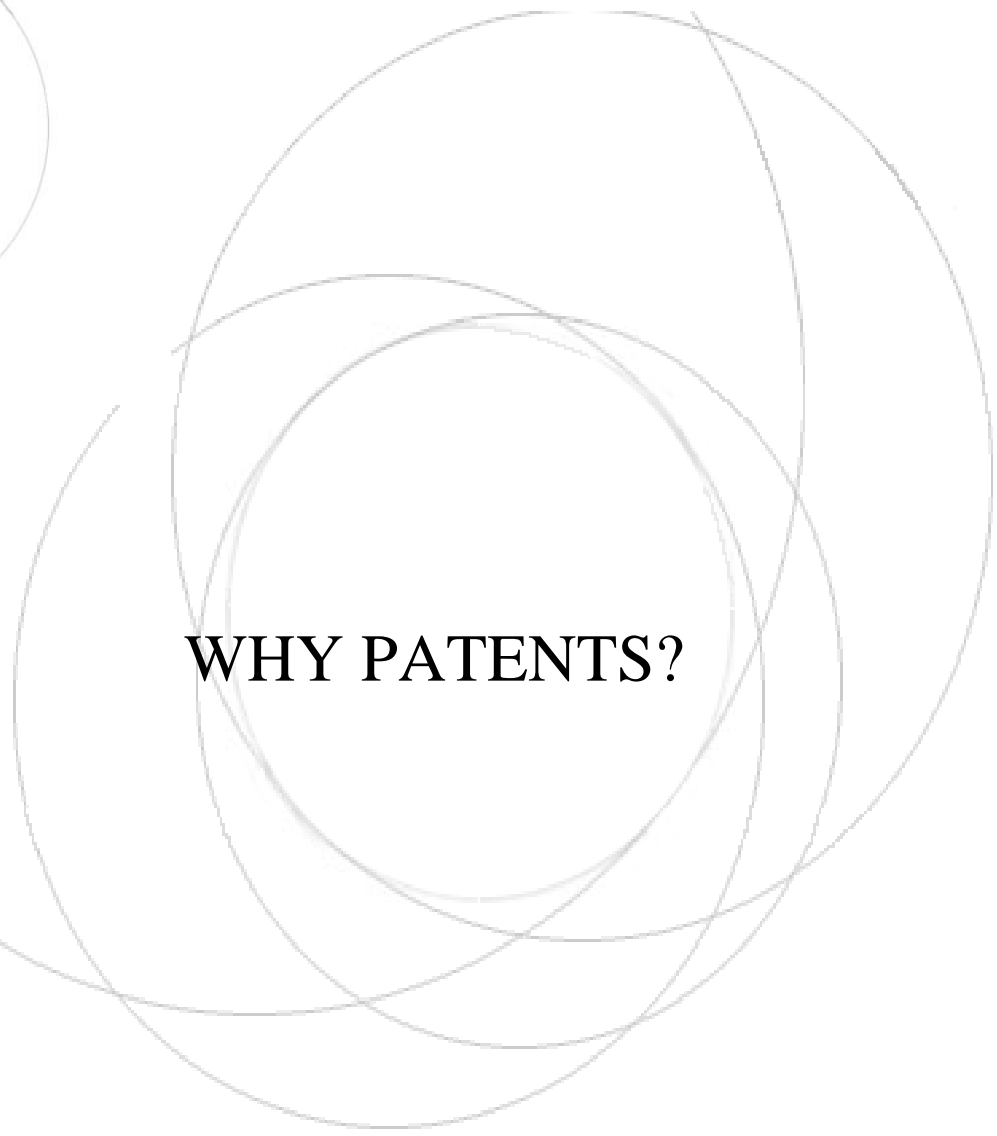


Patents in Today's Economy

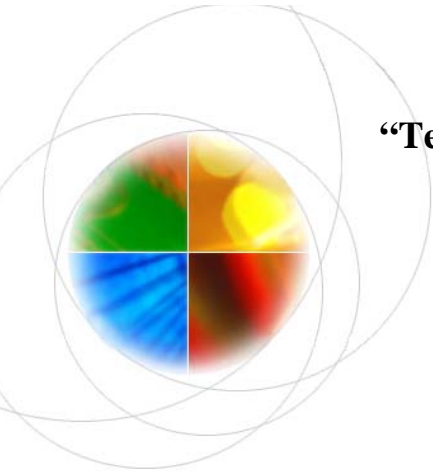
- Growth of knowledge-based industries
- Shorter product cycles, putting pressure for obtaining fast returns on investments
- Legislative changes: stronger protection and greater harmonization
- Expansion of patentable subject matter
- Pressure on Universities and R&D institutions to commercialize R&D results



WHY PATENTS?



“Technology-Push Linear Model of Innovation”



Basic Research



Applied Research



Invention



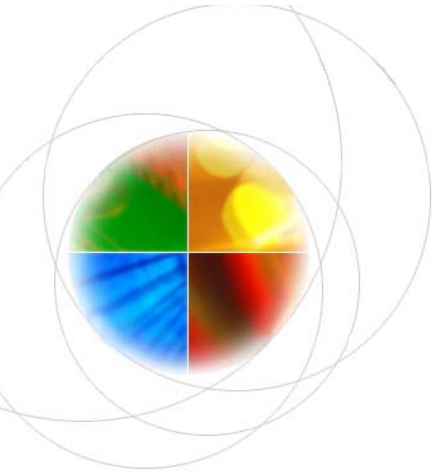
Development



Production



Marketing



Innovation

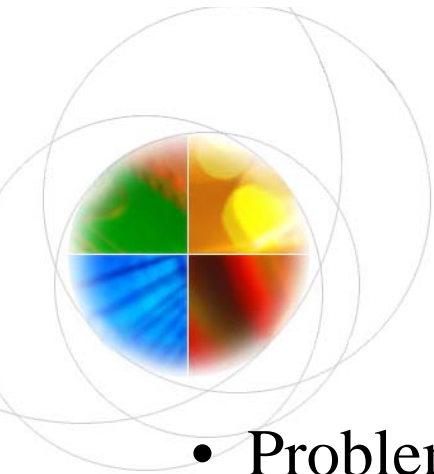
- To innovate may be expensive (investments in R&D)
- High degree of uncertainty and risk associated to the innovation process
- Requires skilled labour



Innovation

But:

- Prevents technological dependence
- Research to meet actual needs
- Process innovation: to save capital and/or labour, gains in productivity
- Product innovation: introduction of new (better? more efficient?) products



- Problem of appropriation
- E.g. pharmaceutical sector
- E.g. music or software industry
- Recoup investments in R&D



What is a Patent?

A patent is an exclusive right granted for the protection of an invention

What is an **invention**?

- It is the solution to a technical problem

What type of **protection** is granted?

- The protection granted by a patent enables the patent holder to prevent anybody from making, selling, using, offering for sale and importing the invention without the consent of the patent holder



What is a Patent?

- For how long?
 - 20 years from filing date, as long as maintenance fees are paid
- Territorial right: invention only protected in the country (or region) in which it was granted.
- In return, the inventor must disclose the invention to the public



What is a Patent?

- Conditions of Patentability:
 - Patentable subject matter
 - The invention must be **new** (not in the prior art)
 - It must involve an **inventive step** (not obvious to a person skilled in the art)
 - It must be capable of **industrial application** (utility requirement)
 - Disclosure of the invention



What is a Patent?

- Structure of a patent application:
 - Request (Title of invention, details of applicant...)
 - Description
 - Drawings
 - Claims
 - Abstract

Patents

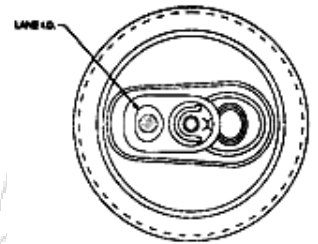
Patents that have changed the world:

- Patent number: US 223,898. Edison's electric bulb.



Patents for simple low/tech products:

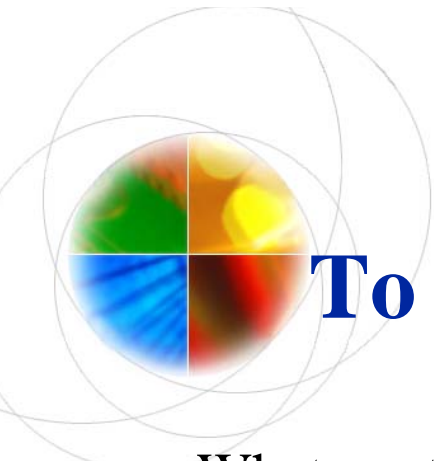
- The inventor licensed the system for opening Coca-Cola cans at 1/10 of a penny per can. During the period of validity of the patent the inventor obtained 148,000 UK pounds a day on royalties.
- Post-it notes: invented by chance, initially ignored by inventor but valued by the manager





Patents

- Why do European SMEs apply for patent protection?
 - Market exclusivity
 - Recouping R&D investments
 - Facilitates licensing
 - Advantageous negotiating tool
 - Financing opportunities (venture capitalists, etc)
 - Favorable image and credibility
 - Freedom to operate
 - Higher market value and publicity
 - International expansion



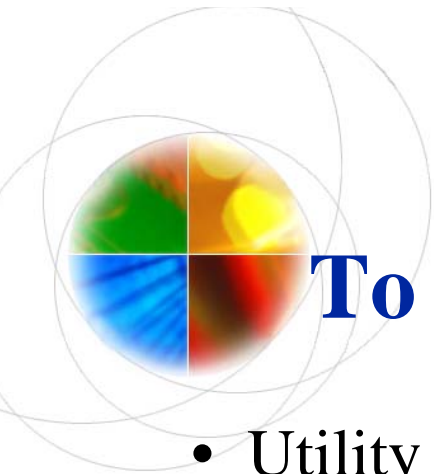
To patent or not to patent

- What are the alternatives?
 - Lead-time advantage
 - Secrecy
 - On-going innovation
 - Technical complexity
 - Complementary sales and service capabilities
 - Use of trademarks and designs to differentiate product from possible imitations
 - Technical disclosure



To patent or not to patent

- Trade secrets: no need for registration. But there are three essential requirements:
 - The information must be **secret** !
 - It must have commercial value because it is secret
 - It must have been subject to reasonable steps by the holder to keep it secret (e.g. confidentiality agreements)



To patent or not to patent

- Utility models or “petty patents”
 - Requirements are less stringent than for patents
 - The term of protection is generally shorter
 - Generally cheaper to obtain and maintain
 - Registration process generally faster (often no substantive examination)
 - Only exists in a limited number of countries



To patent or not to patent

- **Benefits of patents:**
 - exclusive rights for 20 years
 - facilitates licensing negotiations
 - facilitates enforcement
 - a secret is hard to keep
 - enhances image and credibility of company
- **Costs**
 - Application, maintenance and translation fees
 - Publication after 18 months may be undesirable
 - Generally requires access to expertise in IP

What to patent?

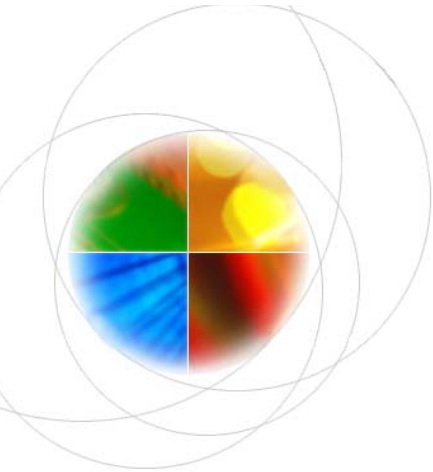
- Patent on every invention or only on high value inventions
- Patent mining (Gillette Mach 3one product, 35 patents)
- Drafting claims
- The greater the scope the higher the value





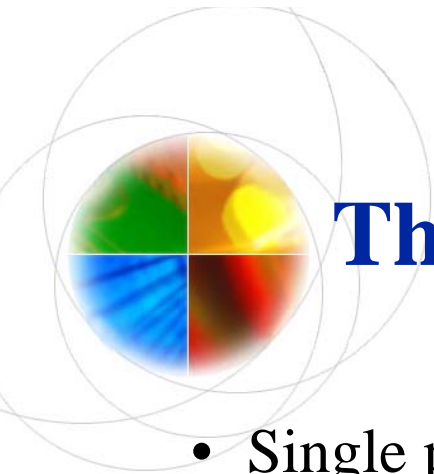
When to patent?

- Late patenting may lead to losing the invention to a competitor (first-to-file system)
- Priority period (practical advantage but also clear deadline)
- Annual maintenance costs increase every year



Where to patent?

- Where will the product be commercialized?
- What are the costs involved in patenting abroad?
- What are the main markets for the product?
- Where are the main competitors based?
- Regional patent systems
- Advantages of the PCT (provides more time)



The Patent Cooperation Treaty

- Single procedure for filing international applications
- 123 Contracting States
- About 110,00 applications a year
- Provides inventors additional time (up to 30 months in total) to decide in which countries to patent
- Reduces transaction costs of applying in many countries



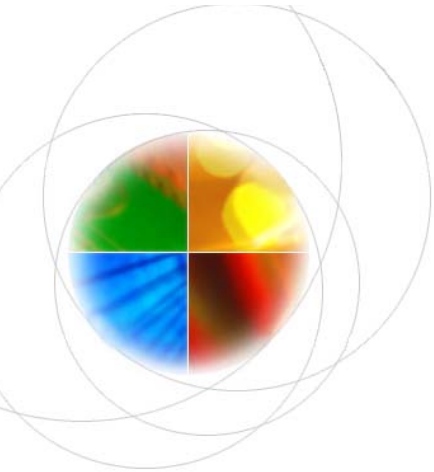
Who owns the patent?

- Company, entrepreneur or employee?
- What happens for subcontracted work?
- Joint ownership?
- Collaboration with universities and PROs
- Inventor vs. Applicant

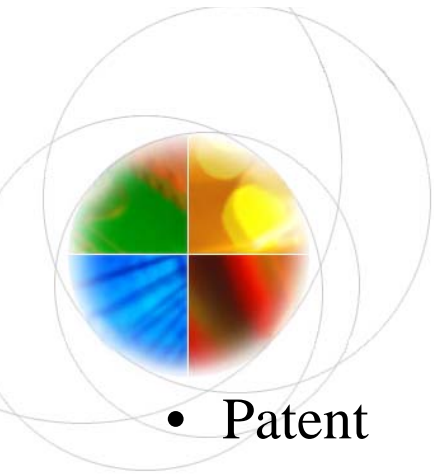


Some important points

- Confidentiality
- Laboratory notebooks
- Provisional patent applications
- Freedom to operate
- Incentives for internal disclosure



**PATENTS:
THE OTHER SIDE OF THE MEDAL**



- Patent

Patents: The other side of the medal

? 1. “deed securing to a person an exclusive right granted for an invention”

? 2. “open, evident, manifest”; “open to public perusal” < Latin *patens*

(Collins Dictionary)



Patent Information

- All patents are published (generally 18 months after the application is filed) and are in the public domain
- A patent is an exchange between the inventor and society



Using Patent Information

- The entire set of patent documents worldwide includes approximately 40 million items.
- Every year approximately 1 million patent applications are published.
- About two-thirds of the technical information revealed in patents is never published elsewhere.



Using Patent Information

- Most of the inventions are disclosed to the public for the first time when the patent is being published.
- The information contained in the patent documents **IS NOT SECRET!**
- Example: PLIVA

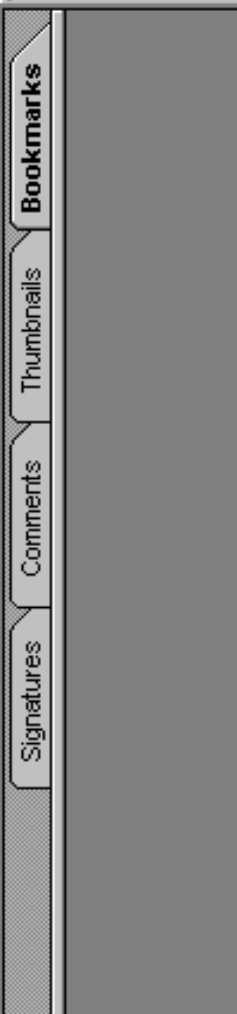


fig-3

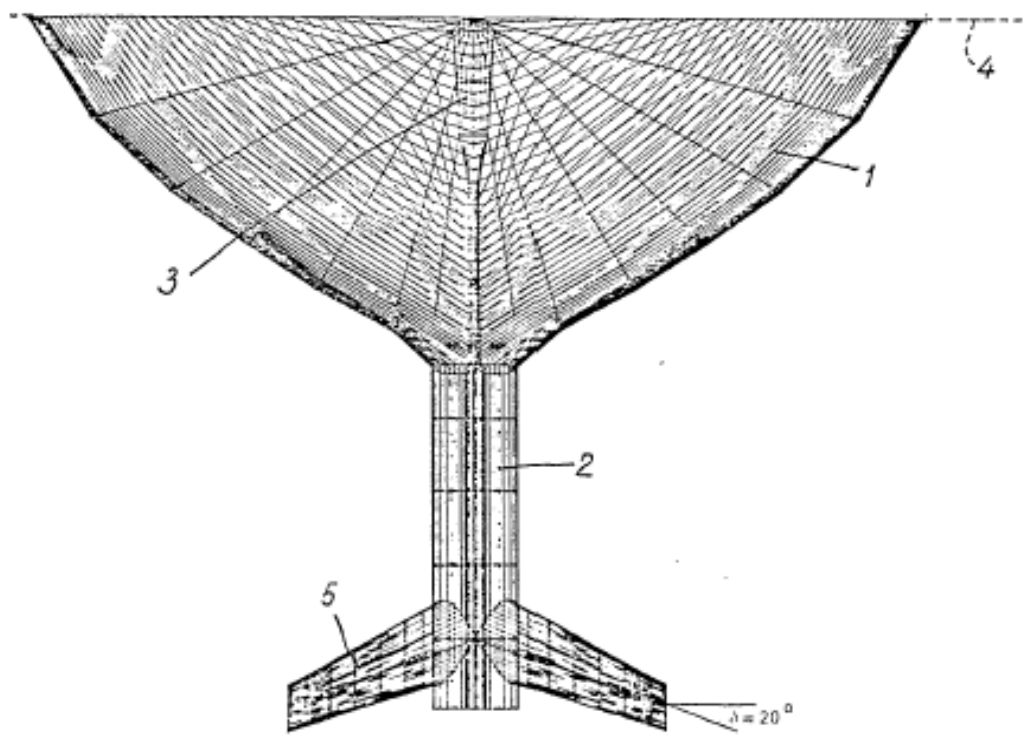
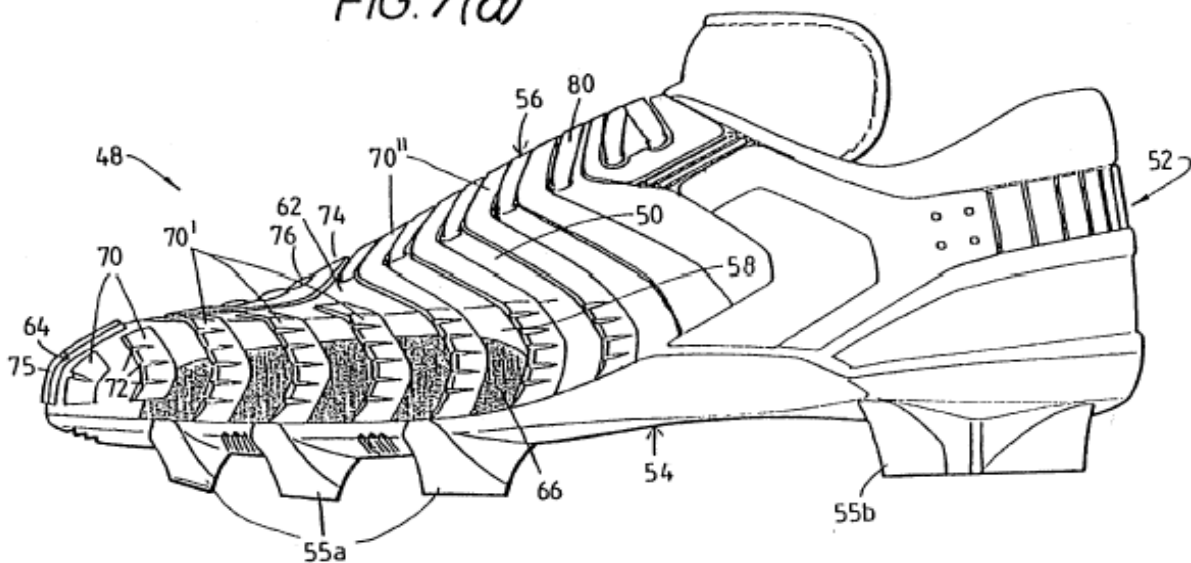
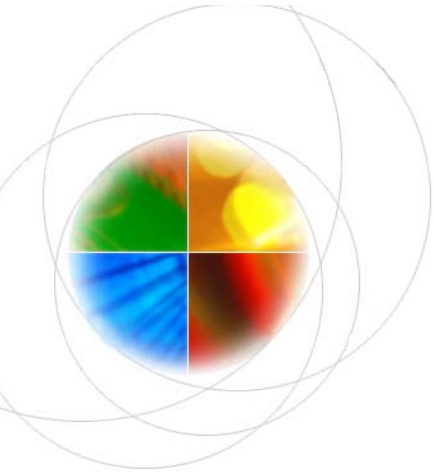




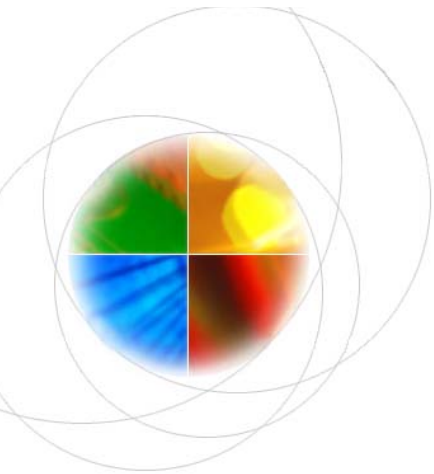
FIG. 7(a)





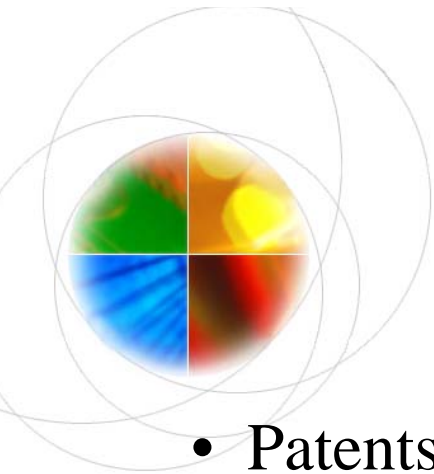
Thomas Edison:

“I start where the last man stopped”



Albert Szent-Györgyi von Nagrapolt
(Nobel Laureate in Medicine):

***“Discovery consists in seeing what everybody
has seen, and thinking what nobody has
thought”***



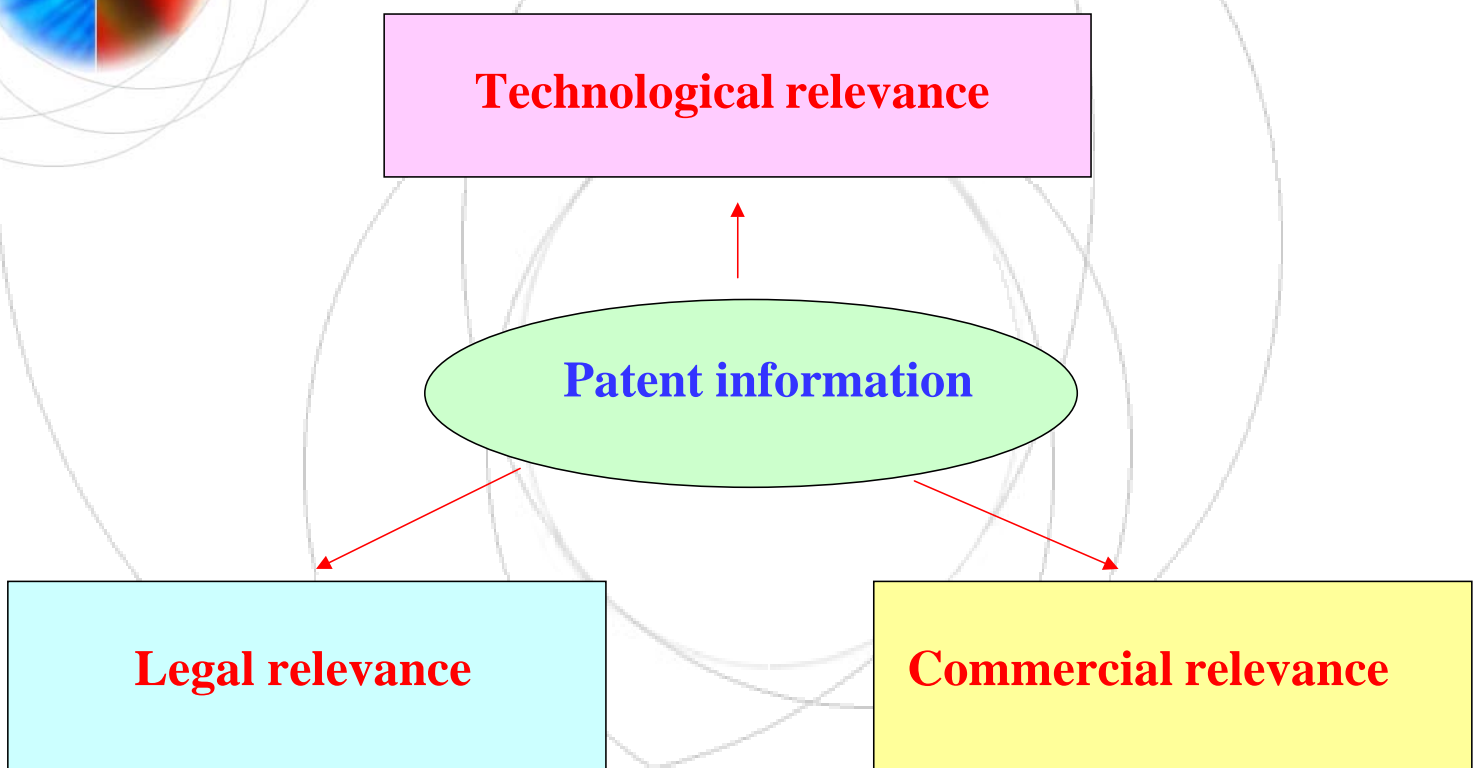
- Patents expire: in Europe only about 20% of patents are maintained for 20 years
- Patents have territorial limits. What is not patented in Spain is in the public domain (in Spain)
- Patents have limits of scope. Patents only protect what is contained in the patent claims

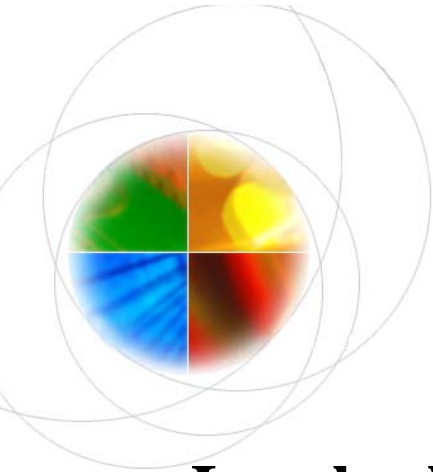


Using Patent Information

- “Patent information” is the technical and legal information contained in patent documents that are published periodically by patent offices.
- A patent document includes the full description of how a patented invention works and the claims which determine the scope of protection as well as details on who patented the invention, when it was patented and reference to relevant literature.

Relevance of patent documents





Using patent information

Legal relevance:

- Avoid possible infringement problems
- Assess patentability of your own inventions
- Oppose grant of patents wherever they conflict with your own patent



Using patent information

Technological relevance:

- Keep abreast with latest technologies in your field of expertise
- Avoid unnecessary expenses in researching what is already known
 - In Europe, more than US\$ 30 mill. per year is wasted in unnecessary research - 30% of the total investment in R&D
- Identify and evaluate technology for technology transfer
- Get ideas for further innovation
- Identify alternative technologies



Using patent information

Commercial Relevance

- Locate business partners
- Locate suppliers and materials
- Monitor activities of real and potential competitors
- Identify niche markets

Where can we find patent documents?

