Engineering Management BMEVITMMB03

Intellectual Property Rights

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Protection of intellectual property

- Creating something really new
  - Authors need their whole personality
  - All existing knowledge
  - Their experiences
  - Sometimes experiences of previous generations

Pierre and Marie Curie in 1906 were Nobel-prized researchers of radio activity

Source: http://www.atomicarchive.com/Bios/CuriePhoto.shtml

Protection of intellectual property

- Time and effort spent on creating, can be hardly measured
- Risk caused by the creating process and the creature cannot be measures neither

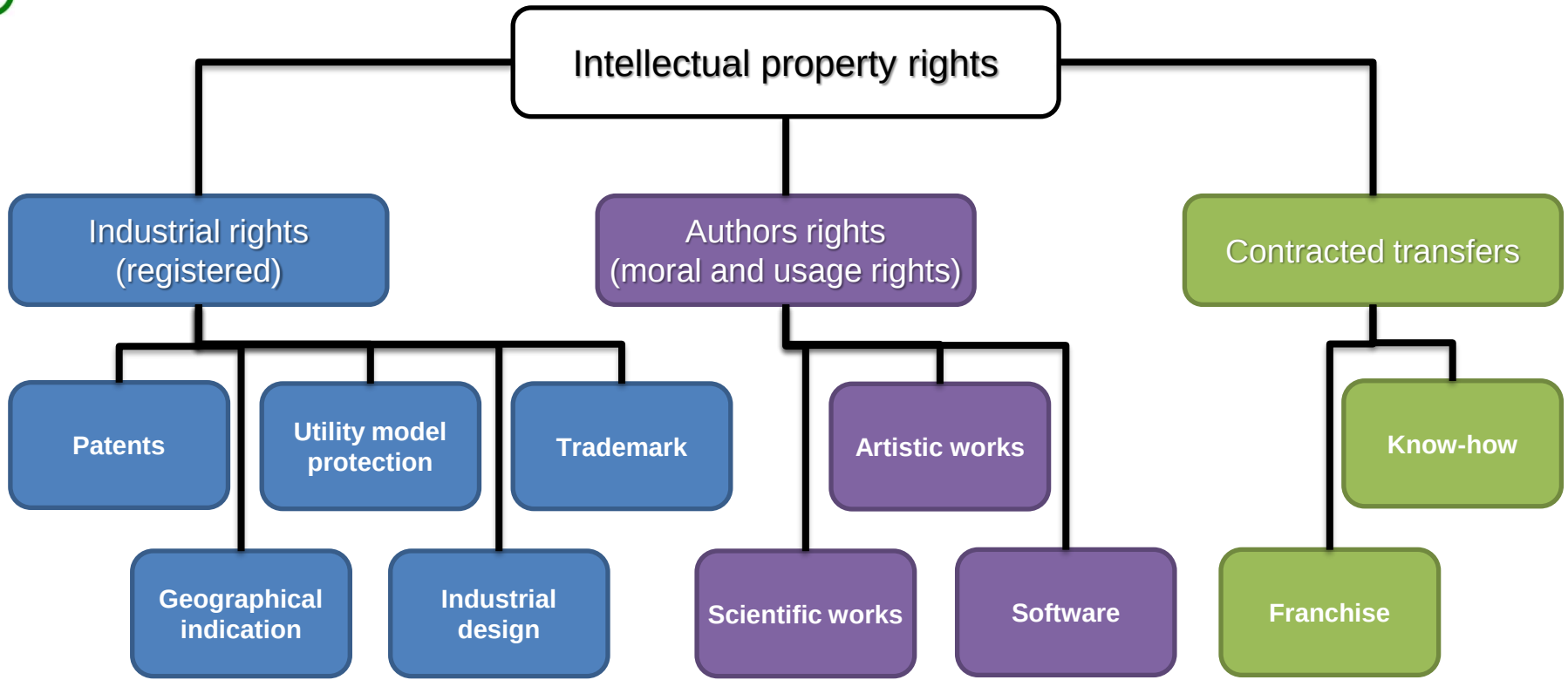
Pierre died in an accident with bicycle, as a consequence of his exhausted living

Marie died some years later in anemia as a consequence of the radiation

Source: http://www.atomicarchive.com/Bios/CuriePhoto.shtml

Protection of Intellectual property rights tends to compensate the listed drawbacks

Main areas


Intellectual property rights
Industrial rights (registered)
Authors rights (moral and usage rights)
Contracted transfers
Patents
Utility model protection
Trademark
Artistic works
Know-how
Geographical indication
Industrial design
Scientific works
Software
Franchise

For how much time one can get protection?

- QUESTION: which rights are applied by  or 

- Possible answers in alphabetical order
  - Copyright
  - Industrial design
  - Patent
  - Trademark
  - Utility model

INDUSTRIAL RIGHTS

Patents, Utility models, Trademarks, Geographical indication, Design protection

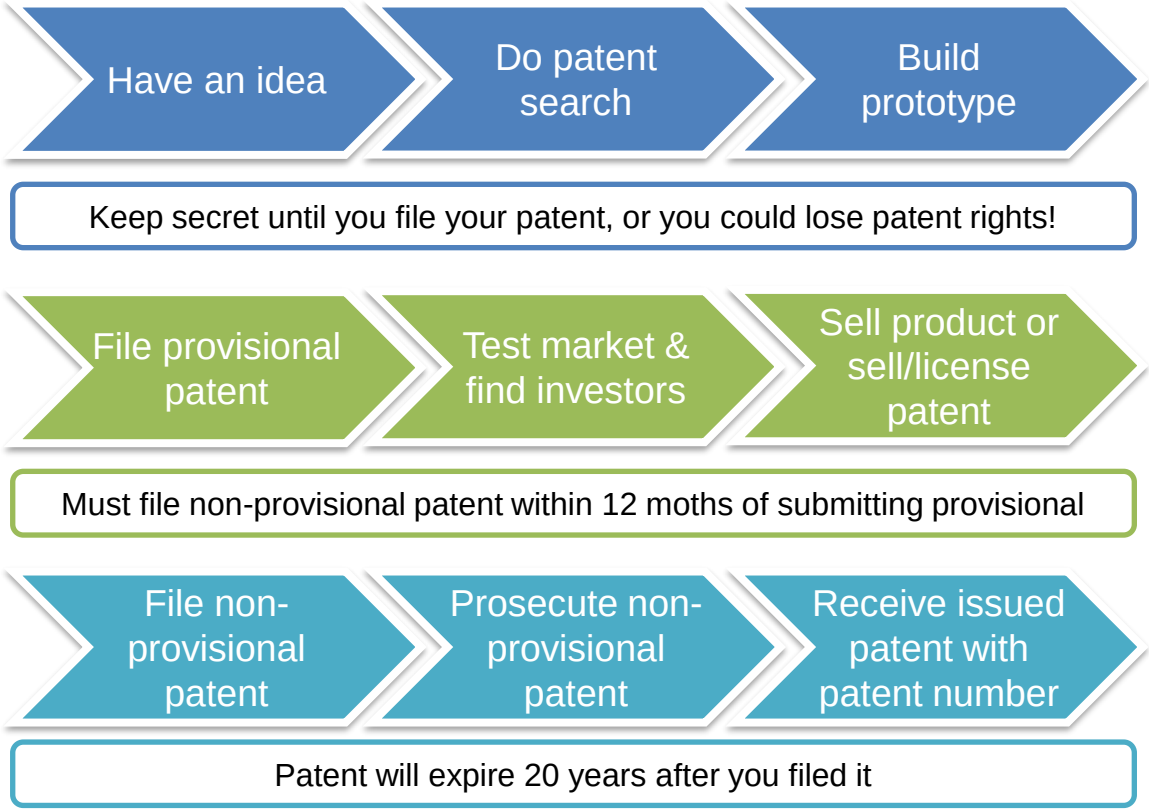
Patents & inventions

- Invention is a new technical solution
  - Software, organization, theory, esthetics cannot be patented (see other rights)
- Patent is the legal protection of an invention
  - **The owner has an exclusive right to exploit the solution of the invention**
  - **The patent protection is valid up to 20 years**
  - There is an official examination of novelty after the application
  - Searching published patent documents is open to everybody
- Applications for protection
  - National, European, US, etc. application
  - Patent Cooperation Treaty

Source: http://patentfile.org/patent-process-and-invention-timeline/

Patenting overview

1. Have your idea, sharpen to be unique and test your idea
2. Provisional patent, test market and how to utilize the idea
3. If your non-provisional patent is granted enjoy the next 20 years



Disclosure and confidentiality

Source: https://www.epo.org/learning-events/materials/inventors-handbook/disclosure.html

- **Disclosure to individuals** during private meetings
  - This type of risk is controllable as long as you take a few basic precautions (see also below)
- **Public disclosure** (less obvious than private meetings):
  - Media publicity and competitions: both may be useful after you have legally protected your idea but definitely not before it
  - Inventions which originate as student projects - especially if there is a requirement to exhibit or publish your work
    - Teaching staff often do not understand that any form of public display of an idea legally constitutes disclosure and can have serious consequences

Source: https://www.epo.org/learning-events/materials/inventors-handbook/novelty/prior-art.html

Novelty and prior art

- An **idea** can be considered as an **invention** if **at least one significant part** of its technology is **completely novel** (i.e., new)
  - There must be no evidence that this novel aspect of your idea has ever been described before, or used for the same purpose before
  - An idea may be an invention if existing technologies are combined in a way that is novel, or used in a way that is novel
- **Prior art is any evidence** that your invention is already known
- **Competing art is any alternative** solution to your problem, which can damage business possibilities to utilize the idea

Inventive step (1/3)

Is the idea obvious?

Source: https://www.epo.org/learning-events/materials/inventors-handbook/novelty/obvious.html

- To be regarded as an invention, an idea needs to include an inventive step
  - An **inventive step must be non-obvious** - that is, it would not readily occur to an expert in the relevant technology

- Judging what might be obvious can be very difficult (to be cont'd)
  - **"Obvious" combination**: many inventions involve combining equipment (for example, fitting a miniature torch to a key-ring). The result of such combinations might be a new product, but its properties or functionality might be entirely predictable as soon as one knew its components. As such, it could be considered **obvious**.

Inventive step (2/3)

Is the idea obvious?

Source: https://www.epo.org/learning-events/materials/inventors-handbook/novelty/obvious.html

- Judging what might be obvious can be very difficult (to be cont'd)
  - **"Simple replacement":** a product in which one component has been replaced for a different one with equivalent properties could be considered to be **obvious** (for example, a small metal spring is replaced with a rubber cone).
  - **"Only solution":** there might be a new problem which can be solved with a well-known piece of equipment: the "novel" process for solving this problem might be considered **obvious** if there was only one solution to the problem, and it would be known to the typical technician facing the problem (so-called "person skilled in the art").

Inventive step (3/3)

Is the idea obvious?

Source: https://www.epo.org/learning-events/materials/inventors-handbook/novelty/obvious.html

- Judging what might be obvious can be very difficult
  - **"Better than sum":** when components are combined to make a product or process with properties which are greater than the sum of its parts, or better than expected, then that could be **non-obvious**.
  - **"Find best solution":** an invention could come from where there are many possible solutions to a problem, but the inventor has had to research and select the best one, that could be **non-obvious**.
  - **"Something unexpected":** an inventor might defy some technical prejudice and solve a problem by doing something every other expert had previously believed would not work, that could be **non-obvious**.

Source: https://www.epo.org/learning-events/materials/inventors-handbook/novelty/searching.html

Prior art search (1/5)

- Two prior art search processes: a **product search and a patent search**
  - Do not ignore evidence you do not like. The purpose of a prior art search is to go looking for evidence you may not like.
  - An absence of prior art at the time of your searches may not be a permanent absence. You should update your prior art searches periodically as you develop your idea.
  - Prior art search - even an official Patent Office examination - is not regarded in law as conclusive proof of novelty.

Source: https://www.epo.org/learning-events/materials/inventors-handbook/novelty/searching.html

Prior art search (2/5)

- **Finding the right keywords or search terms** which best describe your idea since the most obvious key words may be unhelpful
  - E.g., “Mousetrap” produces over millions of hits, but “Rodent trap” (what else it is) and “trapping mice” (what it does) produces 20,000 and 700 hits respectively (see telco examples on later slides!)

- **Product searching** (what is already on the market)
  - Similar to your idea (prior art) or tackles the same problem (competing art)
  - Obsolete technologies or products may be prior art, so check historical as well as current sources of information

Source: https://www.epo.org/learning-events/materials/inventors-handbook/novelty/searching.html

Prior art search (3/5)

- **Patent searching**
  - For many ideas, patent searching will be far more important than product searching. Although many products on the market do not have a patent, they are probably heavily outnumbered by the many ideas that are successfully patented but never reach the market.

- Patent searching involves two skills
  - Finding every patent document that is relevant to your invention
  - Interpreting the significance of your patent search findings
    - Give a try at, e.g., https://worldwide.espacenet.com/

Prior art search (4/5)

Companies may consider only patent offices as safe search places or just a dedicated partner

- European Patent Office (EPO) / Espacenet
  - https://worldwide.espacenet.com/
- Clarivate Analytics (former Thomson-Reuters search)
  - https://clarivate.com/product-category/scientific-academic-research/
  - https://clarivate.com/product-category/patent-research-intelligence-and-services/
- World Intellectual Property Organization (WIPO)
  - https://patentscope.wipo.int/search/en/search.jsf
- US Patent & Trademark Office (USPTO)
  - http://appft.uspto.gov/netahtml/PTO/search-bool.html
- Google Scholar and Google Patents
  - https://scholar.google.com/ https://patents.google.com

Prior art search (5/5)

- Search engines provides “ugly”, scanned documents
  - Here you cannot search for text
  - Thereby they protect their business

- How to search in secret and among the details, as well?
  - Goal: Big Brother should not see your idea, but still have a searchable text
    1. Use Espacenet or Clarivate engines for key word search, and find the ID / number of the patent or application
    2. Check Google Patents web page with searchable html, or many times one can find a searchable pdf version, as well

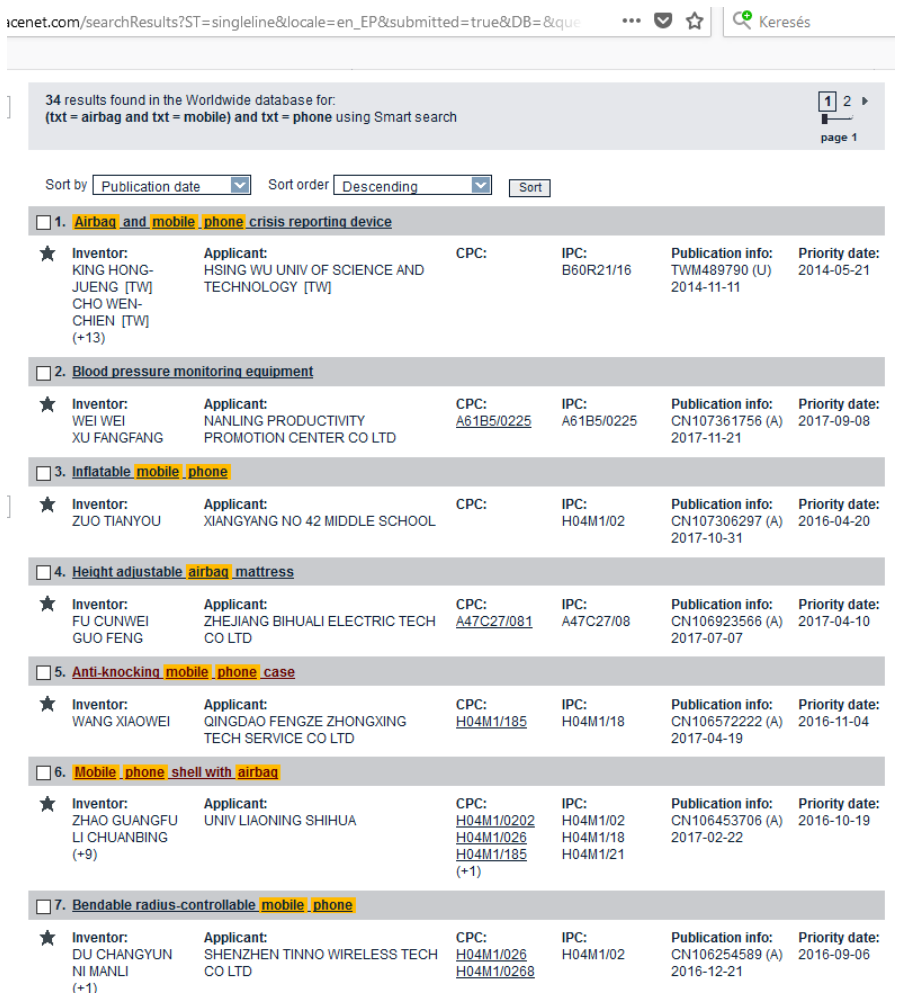
Example 1

Hard to create a novel idea (1/2)

- Since Alexander Graham Bell and Thomas Alva Edison, the world changed much, now “millions” of engineers working on similar topics

- At first, mobile phone with airbag seems to be a novel idea, but...

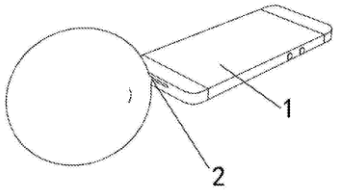
  https://worldwide.espacenet.com/searchResults?ST=singleline&locale=en_EP&submitted=true&DB=&query=mobile+phone+airbag



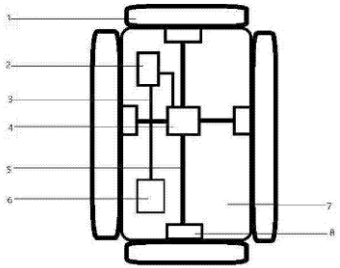
Example 1

Hard to create a novel idea and describe it well (2/2)

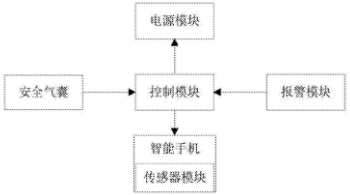
- Inflatable mobile phone (link)
  - After the mobile phone is dropped into water, a sensing trigger at a tail end of the mobile phone triggers the airbag to open, therefore the mobile phone does not sink into the water ...
- Mobile phone shell with airbag (link)
  - ... measuring the falling accelerated speed of a mobile phone ... and popping up the airbag in time ...
- Falling prevention mobile phone device (link)
  - ... if the falling status of the mobile phone is determined, an alarm signal is sent, and the airbag is ejected to protect the mobile phone ...



Drawing well inline with text



Abstract drawing



No drawing about realization

Example 2

Find prior art needs the right search terms / synonyms

- **Patent idea:** optimize distribution of media content to users with different quality needs (represented by layers of media) simultaneously in a wireless network
  - Network: more than able to list
  - Mobile: more than able to list
  - Wireless: more than able to list
  - Distribution: more than able to list
  - Multicast: more than able to list
  - Wireless + multicast: approx. 5000
  - Layered: more than able to list
  - Media: more than able to list
  - Layered media: approx. 1200
  - Multicast layered media: 13
  - Wireless multicast layered media: 3 !!!

(12) **United States Patent**
Gódor et al.

(10) **Patent No.: US 8,125,903 B2**
(45) **Date of Patent: Feb. 28, 2012**

(54) **WIRELESS MULTICAST FOR LAYERED MEDIA**

(75) Inventors: **István Gódor**, Budapest (HU); **Ákos Kovács**, Budapest (HU)

(73) Assignee: **Telefonaktiebolaget LM Ericsson (publ)**, Stockholm (SE)

2004/0168051	A1 *	8/2004	Guo et al.	713/153
2005/0108421	A1 *	5/2005	Xu et al.	709/233
2005/0259623	A1 *	11/2005	Garudadri et al.	370/335
2006/0040707	A1 *	2/2006	Kish et al.	455/562.1

FOREIGN PATENT DOCUMENTS

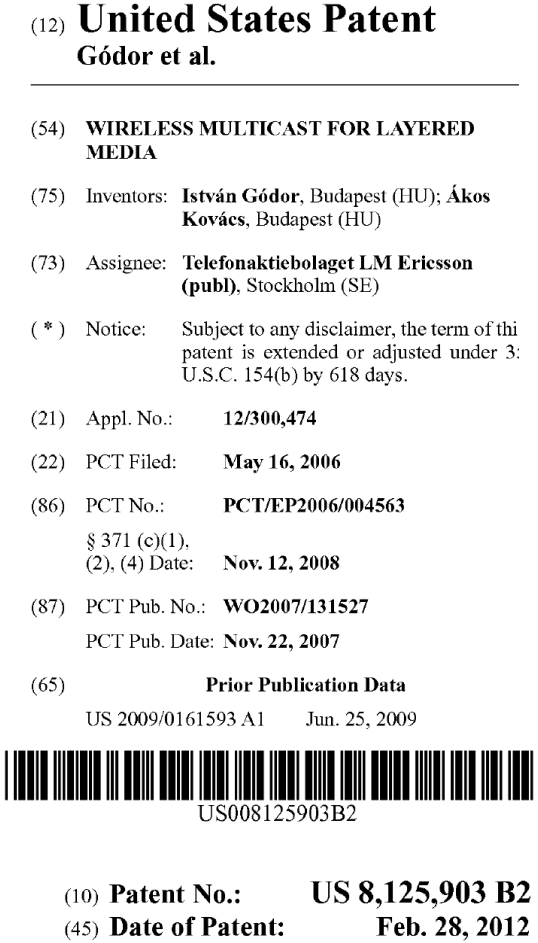
EP	1 320 216	A	6/2003

OTHER PUBLICATIONS

Structure of a patent (1/4)

Header of front page

- Title
- Inventors
  - Inventor(s) should be a natural person, who created the new invention
  - Employees, who have invented within their duties would produce invention for his/her employer
  - Employees who have invented something out of the official duties, the employer should be the first buyer of the usage rights
- Assignee
- Important dates & patent reference numbers



(12) **United States Patent**
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(75) Inventors: **István Gódor**, Budapest (HU); **Ákos Kovács**, Budapest (HU)

(73) Assignee: **Telefonaktiebolaget LM Ericsson (publ)**, Stockholm (SE)

(*) Notice: Subject to any disclaimer, the term of thi patent is extended or adjusted under 3: U.S.C. 154(b) by 618 days.

(21) Appl. No.: **12/300,474**

(22) PCT Filed: **May 16, 2006**

(86) PCT No.: **PCT/EP2006/004563**
§ 371 (c)(1),
(2), (4) Date: **Nov. 12, 2008**

(87) PCT Pub. No.: **WO2007/131527**
PCT Pub. Date: **Nov. 22, 2007**

(65) **Prior Publication Data**
US 2009/0161593 A1 Jun. 25, 2009

US008125903B2

(10) **Patent No.: US 8,125,903 B2**
(45) **Date of Patent: Feb. 28, 2012**

Structure of a patent (2/4)

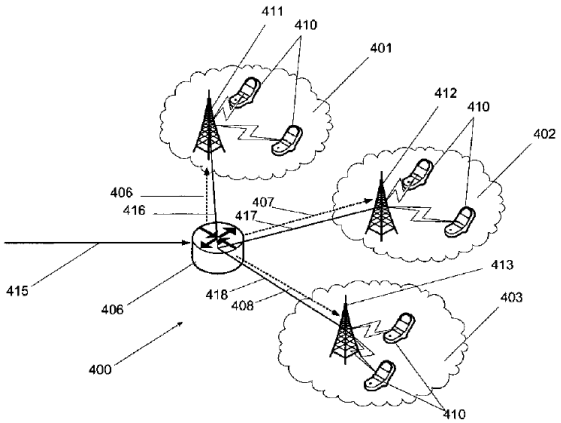
Introduction on front page

- Abstract
  - Brief technical summary about the merit of the invention
  - **Note**: in contrast to the title of the invention (which is many times obfuscated like formulating as “method for managing networks”), the abstract shall be clear
- Main figure illustrating the idea (not always added in the front page, but helps a lot)

(57) **ABSTRACT**

A method and arrangement in a wireless communication network for optimizing data rates when communicating layered multicast data. In an initial probing phase, the receiving capability of each user equipment (UE) in each cell is collected. The optimal data rate for each layer is then calculated and packets are transmitted to the UEs at the optimal rates. The UEs may periodically send updated receiving capabilities so that the optimal data rates can be updated. Additionally, the network may periodically obtain the updated receiving capabilities through secondary probing at unused data rates.

17 Claims, 6 Drawing Sheets



Structure of a patent (3/4)

Positioning the patent

- Technical field
  - Very briefly introduces the field of invention
- Background of the invention
  - A kind of prior art analysis highlighting the main differentiators
  - Might include the bottlenecks of prior art
- Summary of the invention
  - What is novel, what are the advantages, etc.
- Brief description of the drawings
  - Just introduce the figures (like figure captions)

TECHNICAL FIELD

The present invention relates to wireless communication and in particular to an optimization of radio resources in a layered media environment.

BRIEF DESCRIPTION OF THE DRAWINGS

In the following the invention will be described in a non-limiting way and in more detail with reference to exemplary embodiments illustrated in the enclosed drawings, in which:

FIG. **1** illustrates schematically nested data rates in the areas of WLAN 802.11b networks;

FIG. **2** illustrates schematically in a block diagram a method according to the present invention;

Structure of a patent (4/4)

Details and claims

- Drawings (might be presented at the beginning or at the end)
- Detailed description (of preferred embodiments)
  - Description detailed enough to reproduce the idea
  - There could several so-called embodiments, which are practical variants or extensions to cover different “use-cases”
- Claims (to be cont’d with examples)
  - Rigorous description of technical claims (even defining computer storage types as a list, e.g., storage device, floppy, CD, HDD, SSD)
  - Each important item is a separate claim
  - Typically sound like a complex legal statements aiming to cover the widest range of possible fields around the invention

Example claims

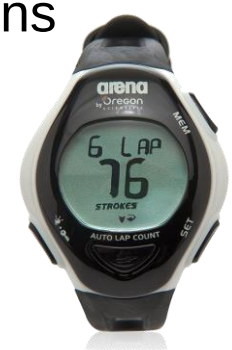
9. “A gateway in a wireless communications network for optimizing data rates when communicating multicast data, for enabling multimedia transport protocol, and for forwarding data **to at least one** user station, said gateway **including a processor coupled to a non-transitory memory**, wherein when **the process executes computer program instructions stored in the non-transitory memory**, the **computer program instructions stored in the non-transitory memory cause** the gateway to

   Receive data packets; obtain available data rates for muticast data corresponding to at least one user stations; compute an optimal data rate for each user stations;” */etc., here come some more functions/*

10. “The gateway **according to claim 9, wherein** the gateway is also configured to maximize either an average data rate within an access network cell, or a data rate per user within the access network cell.”
11. “The gateway **according to claim 9, wherein** the gateway is configured to obtain the available data rates by receiving an Internet Group Management Protocol (IGMP) message.”

Usage and piracy of a patent (1/4)

- **Patentee assures that the industrial solution is functionally applicable**
  - Such that teleporting and time-travelling cannot be patented (yet)
- **Patent holder may allow to use the invention**
  - But typically, licensing fee should be payed for him/her or the company behind
- Fair pricing is expected, but not typical in all domains
  - E.g., the two largest swimming brands had to give up licensing swim watch technology from small companies, while these small companies "*completely miss swimmers, but focusing only on triathlon*" (personal view of professional swimmers)



Source: Arena

Source: Speedo

Usage and piracy of a patent (2/4)

- **Patent trolls**
  - Pejorative term applied to person or company that attempts to enforce patent rights against accused infringers far beyond the patent's actual value or contribution to the prior art
  - Patent trolls often do not manufacture products or supply services based upon the patents in question
  - Not-so-pejorative terms: Patent Assertion Entity (PAE), Patent Holding Company (PHC) or Non-Practicing Entity (NPE)
- Having many patents without being troll
  - Research institutes or university laboratories might have many patents that they either offer their patents to public good or at reasonable price to manufacturers

Usage and piracy of a patent (3/4)

- Telecom patents
  - Most effective (“best”) patents are standard blocking
  - Fair pricing is expected, most company do this since wholesale allows it
    - See, e.g., FRAND (fair, reasonable, and non-discriminatory) terms & conditions regarding standard essential patents
  - But head-by-head comparison between large players is typical
    - Whose “patent tower” is larger?
  - Large lawsuits even with suppliers
    - Apple vs. Samsung
    - Even based on hardly true evidences (like modified images of design in the above case)
  - Research institutes can have extremely large impact (compared to size within company)

Usage and piracy of a patent (4/4)

- **Patentee is not expected to assure profitability of the invention**
  - Consider a chamber pot with a handle inside, which is non-obvious improvement to avoid broken handles
  - But hardly anybody would buy it ☺
- **In case of piracy patent holder is allowed to go to the court and claim for**:
  - Inform the public about piracy
  - Stop the further business based on piracy
  - Compensation from the pirate

Source: Pixabay Creative Commons

Example

World's most innovative companies in 2017

Source: https://247wallst.com/special-report/2018/01/10/the-worlds-50-most-innovative-companies

1. IBM
2. Samsung
3. LG Electronics
4. Intel
5. Canon
6. Alphabet
7. Qualcomm
8. Toyota Motors
9. Microsoft
10. TSMC
11. Sony
12. Apple
13. Toshiba
14. BoE Systems
15. Amazon
16. Mitsubishi
17. Ford Motor
18. Panasonic
19. General Electric
20. Huawei Technologies
21. Fujitsu
22. Ericsson
23. Hitachi
24. Hyundai Motor
25. Seiko Epson
26. Siemens
27. AT&T
28. Robert Bosch Gmbh
29. Boeing
30. Ricoh
31. Kyocera
32. General Motors
33. Xerox
34. Infineon Technologies
35. HP
36. Semiconductor Energy Laboratory
37. Cisco Systems
38. NXP Semiconductors
39. GlobalFoundries
40. SK Hynix
41. Denso
42. Texas Instruments
43. Honda Motor
44. Koninklijke Philips
45. Nokia
46. Honeywell International
47. NEC
48. Micron Technology
49. Oracle
50. Sharp

Example

World's most innovative companies in 2018

Source: https://247wallst.com/special-report/2019/01/24/the-worlds-50-most-innovative-companies-2

1. IBM
2. Samsung
3. LG Electronics
4. Intel
5. Canon
6. Toyota
7. TSMC
8. Microsoft
9. Qualcomm
10. Toshiba
11. Google
12. Sony
13. Apple
14. Ford
15. Amazon
16. General Electric
17. Huawei
18. BoE Technology Group
19. Hyundai Motor
20. Ericsson
21. Seiko Epson
22. Panasonic
23. Boeing
24. Bosch
25. Mitsubishi
26. General Motors
27. Ricoh
28. Fujitsu
29. United Technologies
30. Denso
31. AT&T
32. HP
33. Honda Motor
34. Micron Technology
35. Siemens
36. Semiconductor Energy Laboratory
37. Cisco Systems
38. Koninklijke Philips
39. Halliburton Energy Services
40. SK Hynix
41. EMC IP Holding
42. Texas Instruments
43. Honeywell
44. Murata Manufacturing
45. NEC
46. Oracle
47. Dell
48. Fujifilm
49. Sharp
50. GlobalFoundries

Example

World's most innovative companies in 2020

Source: https://247wallst.com/technology-3/2021/01/13/the-worlds-50-most-innovative-companies-3/2/

1. IBM
2. Samsung Electronics
3. Canon
4. Microsoft
5. Intel Corp
6. Taiwan Semiconductor
7. LG Electronics
8. Apple
9. Huawei Technologies
10. Qualcomm
11. Amazon
12. Sony
13. BOE Technology
14. Toyota
15. Ford
16. Samsung Display
17. Google
18. General Electric
19. Micron Technology
20. Hyundai
21. Boeing
22. Ericsson
23. Seiko Epson
24. Kia Motors
25. Panasonic
26. AT&T
27. Honda
28. Mitsubishi Electric
29. Texas Instruments
30. EMC
31. Cisco
32. Sharp
33. Denso
34. LG Display
35. Robert Bosch
36. Toshiba
37. LG Chem
38. Facebook
39. NEC
40. SK Hynix
41. Ricoh
42. Fujitsu
43. Koninklijke Philips
44. Hewlett Packard Development
45. Dell Products
46. Fujifilm
47. Hewlett Packard Enterprise
48. GM Global Technology Operations
49. Halliburton
50. Murata Manufacturing

Example

World's most innovative companies in 2021

Source: https://247wallst.com/special-report/2022/02/04/the-most-innovative-companies-in-2021/2/

1. IBM
2. Samsung
3. LG
4. Canon
5. Huawei
6. Intel
7. Taiwan Semiconductor
8. Toyota
9. Raytheon (space & defend)
10. Sony
11. Apple
12. Microsoft
13. Qualcomm
14. Boe Technology Group
15. Amazon
16. Dell
17. Alphabet (Google)
18. Micron Technology
19. Panasonic
20. Ford
21. General Electric
22. Johnson & Johnson
23. Hitachi
24. Hyundai Motor
25. Fujifilm
26. Ericsson
27. Boeing
28. Mitsubishi Electric
29. Seiko Epson
30. Honda Motor
31. Meta Platforms (Facebook)
32. Medtronic
33. SK Group
34. Denso
35. Toshiba
36. AT&T
37. USA Federal Government
38. Siemens
39. Robert Bosch
40. Cisco

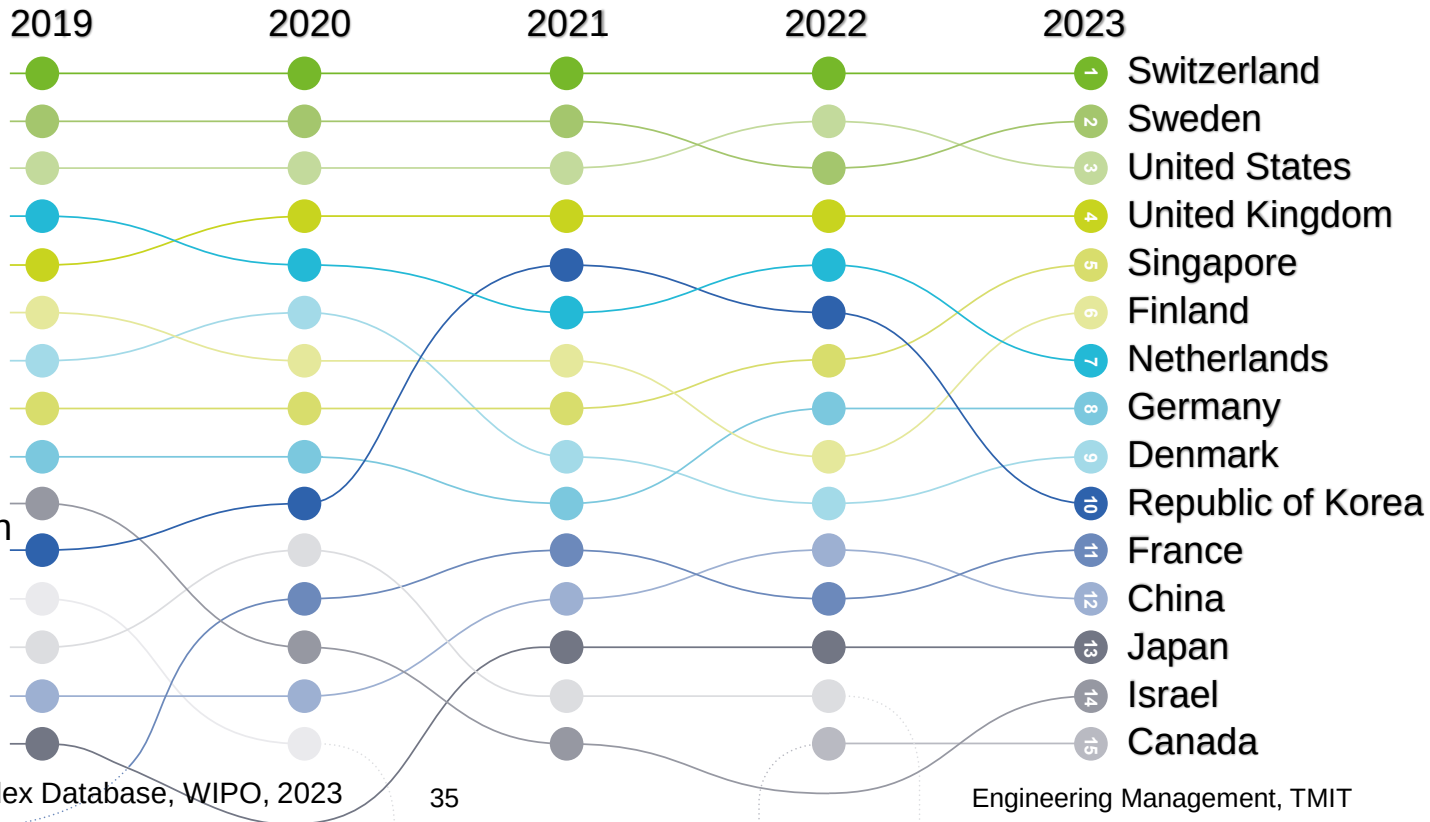
Example

World's most innovative countries in 2023

Source: https://www.wipo.int/publications/en/details.jsp?id=4679

Criterions includes:

- Institutions
- Human capital and research
- Infrastructure
- Market sophistication
- Business sophistication
- Knowledge and technology outputs
- Creative outputs



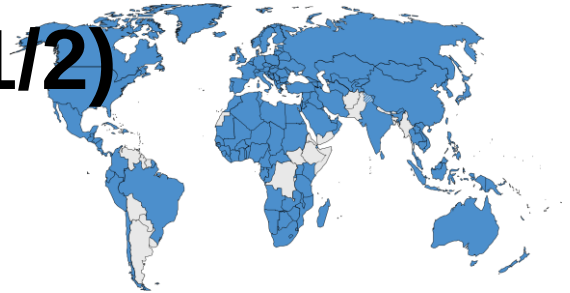
Source: Global Innovation Index Database, WIPO, 2023

Main steps of patenting procedure

1. Filing
2. Formal examination
3. **Novelty search**
4. Publication
5. Substantive examination
6. Examination fee ...
7. **Grant of patent**
   - If the application and the invention meet all the requirements,
   - the patent office shall grant a patent and
   - issues a patent certificate to the applicants.
8. **Definitive protection has a term of 20 years**
   - Protection fee should be paid

Source: http://www.wipo.int/pct/en/

International patent process (1/2)



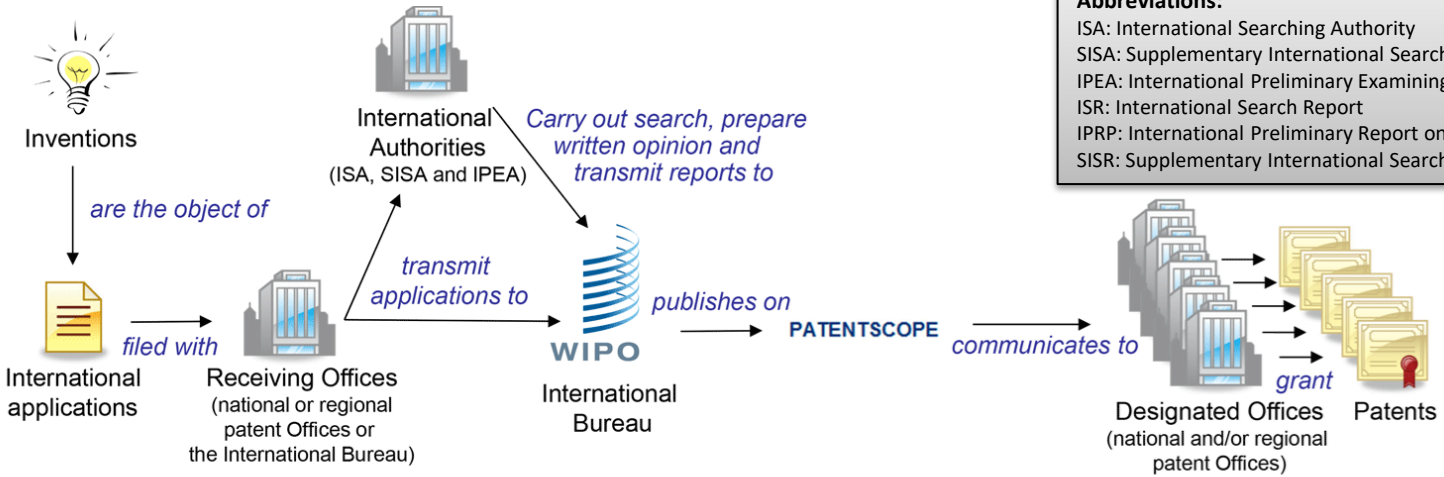
157 PCT contracting countries

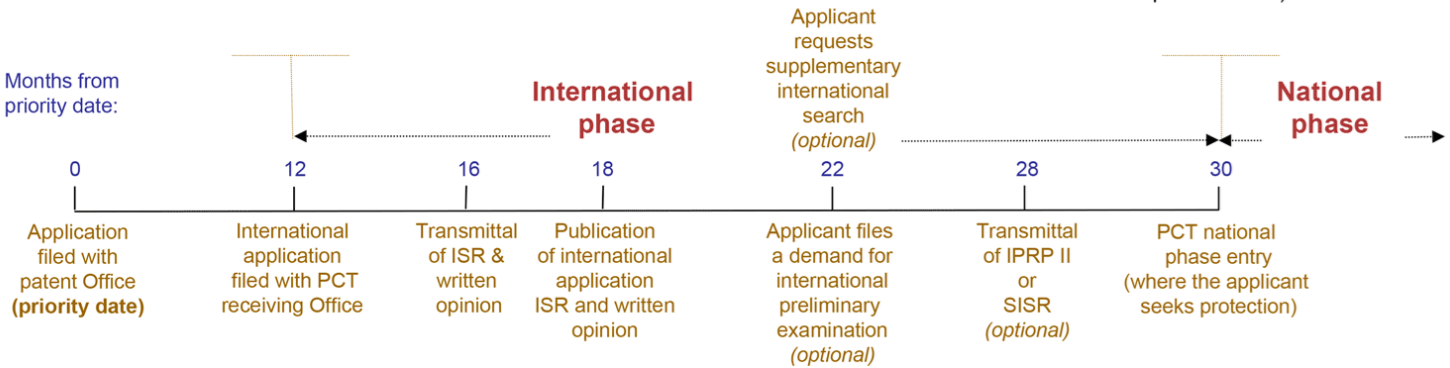
- **Patent Cooperation Treaty (PCT)**
  - Assists applicants in seeking patent protection internationally for their inventions
  - By filing one international patent application under the PCT, applicants can simultaneously seek protection for an invention in a very large number of countries
  - The treaty is under **World Invention and Patent Organization (WIPO)**
    - Claim per country with a common period and separate national periods in each countries
    - The Patent Office organize worldwide examination of novelty
  - The European Patent Convention
    - It is a harmonized application for patent in the EU

Source:http://www.wipo.int/pct/en/faqs/faqs.html

International patent process (2/2)

Abbreviations:
ISA: International Searching Authority
SISA: Supplementary International Searching Authority
IPEA: International Preliminary Examining Authority
ISR: International Search Report
IPRP: International Preliminary Report on Patentability
SISR: Supplementary International Search Report





“Poor men’s patent”

- **Open defense publication**
  - There can be such invention that the company would not like to “invest in”, but would not let others to utilize it, so the idea is offered to the public
  - Such publication could be a blogpost, a white paper or a scientific publication
- **Closed defense “publication”**
  - Own market is enough or not able to patent the idea, so start the production in secret
  - Put the description of the idea into an attorney / notary deposit (or even send a registered mail to himself/herself)
  - Cannot stop others utilizating the idea, but he/she cannot be sued either

Patenting administration costs

Rough estimates showing order of magnitudes

- Hungary: if applicant is the inventor, then it is much cheaper
- Submission & search & written evaluation & acceptance
  - 200k HUF (Hungary) vs. 6800 EUR (EU)
- Annual renewal fee (average, increases as patent getting older)
  - 150k HUF (Hungary) vs. 1500 EUR (EU)
- Attorney fees are comparable with admin costs

Further useful links

About international patenting

- http://www.the-business-of-patents.com/wipo-patents.html
- http://www.sztnh.gov.hu/English/szabadalom/pct_ut/jogforras_szab.html#nemzetkozi
- http://www.wipo.int/pct/en/pct_contracting_states.html
- http://www.wipo.int/pct/en/activity/
- http://en.wikipedia.org/wiki/Patent_Cooperation_Treaty

Source: http://www.wipo.int/patents/en/topics/utility_models.html

Utility model protection (1/3)

- It is a legal protection for the **new technical solutions** not reaching the level of a patentable invention (available less than half compared to PCT countries)
  - In some countries, utility models can be applied for in the **same fields of technologies as patents**
  - In other countries, utility model protection is eligible **only for the shape or structure of products** in certain fields of technology, such as **mechanical devices and apparatus**, but not for technical, chemical and biological processes
    - **Note**: eligible subject matter for utility models varies significantly from one country to another
- Same exclusive rights as for patents, but easier to cancel due to lack of novelty search

Utility model protection (2/3)

Source:
http://www.wipo.int/patents/en/topics/utility_models.html
http://www.sztnh.gov.hu/en/utility-model-protection

- The owner of a utility model obtains **the exclusive right to exploit** the utility model
  - Prevent or stop others from commercially exploiting the utility model for a limited period
  - Or to license another person to exploit it
  - The protection has a term of 6 to 10 years from the filing date, then the utility model become part of the public domain

    - **Note**: utility model protection means that the invention cannot be commercially made, used, distributed, imported or sold by others without the utility model owner's consent. **The above right is territorial**, i.e., the right can be enforced only within the country in which a utility model is granted

Utility model protection (3/3)

Source: http://www.wipo.int/patents/en/topics/utility_models.html

- Utility models
  - Less strict requirements
  - Novelty needed with lower level of inventive step or non-obviousness
  - Often considered incremental innovation
  - Protection for 6 to 10 years
  - Simpler registration process taking 6 months or less
  - Sometimes only for products
  - Lower fees for process (roughly 25% of patents)
- Patents
  - More strict requirements
  - Novelty needed with proven inventive step and non-obviousness
  - Often considered “the real” innovation
  - Protection for 20 years
  - Complex process taking 30 months or even more (see PCT slides)
  - Both for products and processes
  - Higher fees for process

Source:
http://www.wipo.int/trademarks/en/
http://www.sztnh.gov.hu/English/vedjegy/

Trademarks (1/4)

- A trademark is any **sign which is capable of being represented graphically and distinguish** the goods or services (cf. servicemark)
- It is a tool of competition
- Owner has the **exclusive rights to use**, but he/she should build up the image
- For 10 years, which may be extended through further periods of 10 years on the registered owner's request
- It is possible to ask for the common protection in EU
- **The novelty of the good is not requested**

Source:
http://www.wipo.int/trademarks/en/
http://www.sztnh.gov.hu/English/vedjegy/

Trademarks (2/4)

- Signs may include words, including personal names, designs, letters, and the shape of goods and their packaging
  - **Coined words** (or fanciful words): these are invented words without any real meaning in any language (e.g., Kodak or Exxon) with the advantage of being easy to protect as they are more likely to be considered distinct
  - **Arbitrary marks:** consist of words having a real meaning in a given language, but without relation to the product itself or to any of its qualities (e.g., Apple, Shell)
  - **Suggestive marks:** hint at one or some of the attributes of the product like quality or lifetime (e.g., Everlast, The North Face)

Trademarks (3/4)

Cheating with similarity

- Logos from 2010

Ericsson's logo

Logo infringement

- Phones from 2010

Source: Sony Ericsson

Source: memory of Internet

Source: Apple

Source: memory of Internet

Trademarks (4/4)

Rough estimates showing order of magnitudes

- Hungary: if applicant is the inventor, then it is much cheaper

- Initial costs
  - 60k HUF (Hungary) vs. 850 EUR (EU)

- 10-yearly renewal fee
  - 60k HUF (Hungary) vs. 1000 EUR (EU)

Geographical indication (1/2)

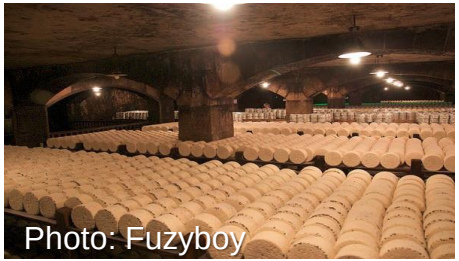
Source:
http://www.wipo.int/geo_indications/en/
http://www.sztnh.gov.hu/English/foldrajzi_arujelzo/

- Geographical indication (GI) is a sign used on products that have a **specific geographical origin** and possess qualities or a reputation that are due to that origin
  - There is a clear connection between the quality of a given product and its original place of production
  - It could be protected by other industrial property rights
- A geographical indication right enables those who have the right to use the indication to prevent its use by a third party whose product does not conform to the applicable standards
  - Does not enable the holder to prevent someone from making a product using the same techniques as those set out in the standards for that indication

Geographical indication (2/2)

Source:
http://www.wipo.int/geo_indications/en/
http://www.sztnh.gov.hu/English/foldrajzi_arujelzo/

- Geographical indications are typically used for agricultural products, foodstuffs, wine and spirit drinks, handicrafts, and industrial products



Roquefort cheese
The unique blue cheese from France is aged in natural caves around the Roquefort-sur-Soulzon region

Pinggu peaches
The Pinggu district north of Beijing, China, bills itself as the biggest peach farm in the world, providing employment for over 150,000 people

Tokaji wine
Geographical indications help the ancient Tokaji wine industry to unlock its potential

Source: http://www.wipo.int/designs/en/
http://www.sztnh.gov.hu/English/formaterv/

Industrial design (1/3)

- The treaties that WIPO administers, together with national and regional laws, make up the **international legal framework for industrial designs**
- Design protection grants legal protection for the appearance of a product
  - An industrial design may consist of three-dimensional features, such as the shape of an article, or two-dimensional features, such as patterns, lines or color
  - Should be new on a worldwide level and have individual character
  - The owner has the right to prevent third parties from making, selling or importing articles bearing or embodying a design which is a copy, or substantially a copy, of the protected design, when such acts are undertaken for commercial purposes

Source: http://www.wipo.int/designs/en/
http://www.sztnh.gov.hu/English/formaterv/

Industrial design (2/3)

- Depending on the particular national law and the kind of design, industrial designs **may also be protected** as works of art **under copyright law**
- **Duration:** for 5 years beginning on the filing date of the application
  - Term can be renewed for further periods of five years each, four times at the most
  - Maximum duration is 25 years
- The right holder can create or strengthen his position on the market

Photo: Procter&Gamble

Business success
Contribute to both innovation and brand building, e.g., cosmetics


Photo: Hermes Sellier

Fashion
Industrial design law is at the heart of the European fashion industry

Industrial design (3/3)

Rough estimates showing order of magnitudes

- Initial costs
  - 30k HUF (Hungary) vs. 7600 CHF (global)
- 5-yearly renewal fee
  - 60-160k HUF (Hungary)

AUTHORS RIGHTS – COPYRIGHT

Artistic works, Scientific works, Software

Historical origin of copyright

Source:
http://www.wipo.int/treaties/en/ip/wct/
http://www.sztnh.gov.hu/English/szerzoijog/

- **Copyright regulates the protection of the authors of authorial works**
  - Any individual, original creation originating from creative intellectual activity
  - In the fields of literature, science and art in which the given creation is embodied
  - Time limit should be equal to or longer than 50 years after the creator's death, longer periods of protection may however be provided at the national level
- **Berne Convention for the Protection of Literary and Artistic Works**
  - Adopted in 1886 with the means to control **how their works are used, by whom, and on what terms**

- **WIPO Copyright Treaty (WCT)**
  - A special agreement under the Berne Convention which deals with the protection of works and the rights of their authors **in the digital environment**

Protection of copyright (1/2)

Source:
http://www.wipo.int/treaties/en/ip/wct/
http://www.sztnh.gov.hu/English/szerzoijog/

- **The protection of copyright belongs to the author from the time of the creation of the work**
  - No application or registration at any authority – or payment of fees pertaining thereto – is needed in this respect, the right exists by definition
- **Voluntary copyright registration**
  - **Authorial work:** derived from intellectual activity with individual and original characters and features
  - After registration for a small fee, the authority gives an authorial certificate
    - E.g., Szellemi Tulajdon Nemzeti Hivatala (SZTNH, Hungary, 5kHUF), Canadian Intellectual Property Office, United States Copyright Office
  - The certificate **does not originate any other legal protection, but can be used as a proof** that the work has already existed at the date of issue

Protection of copyright (2/2)

Source:
http://www.wipo.int/treaties/en/ip/wct/
http://www.sztnh.gov.hu/English/szerzoijog/

- **There is no copyright for:**
  - Laws, standards; facts, daily news; ideas, theories; processes, mathematical operations; folklore items

- **Economic rights**, which allow the rights owner to derive financial reward from the use of his works by others
  - The economic rights can be inherited or sold, sometimes in advance
  - Under an employment contract, economic rights shall be transferred to employer
- **Moral rights**, which protect the non-economic interests of the author
  - The author's moral rights cannot be assigned

Source:
http://www.wipo.int/treaties/en/ip/wct/
http://www.sztnh.gov.hu/English/szerzoijog/

Orphan works

- **Copyright of orphan works**
  - An orphan work is a copyright protected work for which rightsholders are positively indeterminate or uncontactable. If someone would like to use such a work, then the given authority can give a permission for a fee
    - Hungary (90kHUF): Szellemi Tulajdon Nemzeti Hivatala, permission for at most 5 years, cannot be transferred, not exclusive... If the author pops up, the authority withdraws permission, and author can demand for the copyright fee.
    - USA: United States Copyright Office, any copyright holder will be given 90 days to come forward and object to its use. If no rights holder emerges, or if the user successfully establishes the use is a noncommercial fair use of the recording, the recording may be used freely (since 2018, only valid for music, e.g., for books similar approach to Hungary).
    - EU: European Union Intellectual Property Office, after registration, very limited usage, mainly for cultural heritage institutions.

Copyright in science

Source: https://en.wikipedia.org/wiki/Copyright_policies_of_academic_publishers

- **Scientific / academic publishing**
  - **Traditionally**, the author of an article was required to transfer the copyright to the journal publisher (to coordinate permissions for reprints or other use), but often it is allowed to submit the author's version of the accepted paper (the unedited manuscript) to
    - A funding body's archive
    - Their institution's repositories
    - Their personal websites
    - Or even for public release six months / one year after publication
  - In **open access**, the publisher has permission to edit, print, and distribute the article commercially, but the author(s) retain the other rights themselves

Image citation 1/2
Overview

Source:
http://guides.library.ubc.ca/c.php?g=698822&p=4965735
https://creativecommons.org.au/content/attributingccmaterials.pdf

- What to include when attributing
  - Credit the creator, provide the title of the work and URL where it is hosted
  - Indicate the type of license it is available under, provide a link to the license and keep intact any copyright notice associated with the work
- Online image databases and web sites
  - With Creative Commons (CC) Licenses
    - Many of the free databases, like Flickr and Wikimedia Commons
    - Users of the work shall attribute the creator and provide any relevant copyright information
  - With individual licenses or permission statements
    - Terms of use define how and where to reuse/publish at what cost

Note: licensed image databases, print and electronic publications might have complex terms of use

Image citation 2/2
Creative commons licenses

Source:
http://guides.library.ubc.ca/c.php?g=698822&p=4965735
https://creativecommons.org.au/content/attributingccmaterials.pdf

- CC BY: Attribution
  - Use as they wish (even commertially, remix, adapt, etc.) as long as they credit you

- CC BY-SA: Attribution-ShareAlike
  - Use as they wish (even commertially, remix, adapt, etc.) as long as they credit you and license their new creations under the identical terms (a kind of “copyleft” free use)

- CC BY-ND: Attribution-NoDerivs
  - They reuse the work for any purpose (even commercially) as long as they credit you for the original creation, but it cannot be shared with others in adapted form

- CC BY-NC: Attribution-NonCommercial
  - Same as CC BY, but only non-commercially

- CC BY-NC-SA: Attribution-NonCommercial-ShareAlike
  - “Copyleft” version of CC BY-NC

- CC BY-NC-ND: Attribution-NonCommercial-NoDerivs
  - Use non-commertially without any modification as long as they credit you

Source:
https://en.wikipedia.org/wiki/Software_copyright

Copyright of software

- **Licensed software**
  - Economic rights for **software code and database** …
  - Similar to other artistic productions, like books, paintings or music
  - Agreements are often labeled as end-user license agreements (EULAs)

- **“New approach”: free or open-source software**
  - The GNU General Public License (GNU GPL or GPL): copyleft
    - Guarantees end users the freedom to run, study, share and modify the software
  - Berkeley Software Distribution (BSD) and MIT License: permissive free software
    - Imposing minimal restrictions on the use and redistribution of covered software

Source:
https://en.wikipedia.org/wiki/MIT_License

MIT license

- The MIT license is compatible with many copyleft licenses, such as GPL
- MIT licensed software can be integrated into GPL software, but not the other way around because
  - Permits reuse within proprietary software provided that all copies of the licensed software include a copy of the MIT License terms and the copyright notice

```
Copyright (c) <year> <copyright holders>

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.
…
```

Source:
https://en.wikipedia.org/wiki/BSD_licenses

BSD license 1/3

- 4-clause license (original "BSD License")
  - **Not GPL compatible** (mainly due to the highlighted red part)

```
Copyright (c) <year>, <copyright holder>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software
   must display the following acknowledgement:
   This product includes software developed by the <organization>.
4. Neither the name of the <organization> nor the
   names of its contributors may be used to endorse or promote products
   derived from this software without specific prior written permission.
…
```

First point to be removed for GPL compatibility

Second point to be removed FreeBSD

Source:
https://en.wikipedia.org/wiki/BSD_licenses

BSD license 2/3

- 3-clause license ("BSD License 2.0", "Revised BSD License", "New BSD License", or "Modified BSD License")
  - **GPL compatible (the advertising part is removed from original version)**

```
Copyright (c) <year>, <copyright holder>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
3. Neither the name of the <organization> nor the
   names of its contributors may be used to endorse or promote products
   derived from this software without specific prior written permission.
…
```

Source:
https://en.wikipedia.org/wiki/BSD_licenses

BSD license 3/3

- 2-clause license ("Simplified BSD License" or "**FreeBSD License**")
  - **GPL compatible (the promotional part is also removed from original version)**

```
Copyright (c) <year>, <copyright holder>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
…
```

GNU General Public License (GNU GPL or GPL)

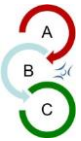
Source: https://www.gnu.org

- Free software license, which guarantees end users the freedom to run, study, share and modify the software
- Copyleft license, which means that derivative work can only be distributed under the same license terms
- Current version is GPLv3, protects users from three recent threats
  - **“Tivoization**: some companies have created various different kinds of devices that run GPLed software, and then rigged the hardware so that they can change the software that's running, but you cannot.”
  - **“Laws prohibiting free software**: legislation like the Digital Millennium Copyright Act and the European Union Copyright Directive make it a crime to write or share software that can break DRM (Digital Restrictions Management). These laws should not interfere with the rights the GPL grants you.”
  - **“Discriminatory patent deals**: Microsoft has recently started telling people that they will not sue free software users for patent infringement—as long as you get the software from a vendor that's paying Microsoft for the privilege. Ultimately, Microsoft is trying to collect royalties for the use of free software, which interferes with users' freedom. No company should be able to do this.”

Incorporate GPL-covered software in proprietary system 1/3

Source: https://www.gnu.org/licenses/gpl-faq.html

- ***"You cannot incorporate GPL-covered software in a proprietary system"***
  BUT
  "in many cases you can distribute the GPL-covered software alongside your proprietary system"
  - *"Make sure that the free and nonfree programs **communicate at arms length**, that they are not combined in a way that would make them effectively a single program"*
    - If you are using a GPL program, but you could easily use a different one as a drop-in replacement, you're communicating at arms length
    - If using a different, but similar program, means you have to re-architect your application, it's not at arms length

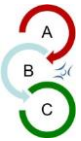


Incorporate GPL-covered software in proprietary system 2/3

Source: https://www.gnu.org/licenses/gpl-faq.html

- Being separate programs
  - *"If two programs remain well separated, like the compiler and the kernel, or like an editor and a shell, then you can treat them as two separate programs—but you have to do it properly"*

- Whether a program and its plug-ins are considered a single combined program depends on how the main program invokes its plug-ins
  - If the main program uses **fork and exec** to invoke plug-ins
    - If they establish intimate communication by sharing or shipping complex data structures back and forth, that can make them one single combined program
    - If they do not have intimate communication, then the plug-ins are separate programs



Incorporate GPL-covered software in proprietary system 3/3

Source: https://www.gnu.org/licenses/gpl-faq.html

- Whether a program and its plug-ins are considered a single combined program depends on how the main program invokes its plug-ins (cont'd)
  - If the main program **dynamically links** plug-ins
    - *"If they make function calls to each other and share data structures, we believe they form a single combined program, which must be treated as an extension of both the main program and the plug-ins"*
    - *"If the main program dynamically links plug-ins, but the communication between them is limited to invoking the 'main' function of the plug-in with some options and waiting for it to return, that is a borderline case"*
  - **Using shared memory** to communicate with complex data structures is pretty much equivalent to dynamic linking
  - Note: GPL has the same requirements for **static and dynamic linking**, as well

Lesser GPL (LGPL)

Source:
https://en.wikipedia.org/wiki/GNU_Lesser_General_Public_License

https://www.gnu.org/licenses/why-not-lgpl.html

- **LGPL allows the work to be linked** with (in the case of a library, "used by") a non-(L)GPLed program in both free and proprietary software
  - The non-(L)GPLed program can then be distributed under any terms if it is not a derivative work
  - If it is a derivative work, then the program's terms must allow GPL freedom
- Whether a work that uses an LGPL program is a derivative work or not is a legal issue
  - A standalone executable that **dynamically links to a library through a .so, .dll**, or similar medium is generally accepted as **not being a derivative work** as defined by the LGPL (**in contrast to GPL**)

Source:
https://www.gnu.org/philosophy/selling.html

Is it legal to sell GPL software? 1/2

- **The word “free” has two legitimate general meanings**
  - Can refer either to freedom or to price
  - **“Free software” is about freedom, not price** (think of “free speech”, not “free beer”)
  - Freedom means that a user is free to run the program, study and change the program, and redistribute the program with or without changes
  - Except for one special situation, GNU GPL has no requirements about how much you can charge for distributing a copy of free software
    - The one exception is in the case where binaries are distributed without the corresponding complete source code (cont’d on next slide)

Source:
https://www.gnu.org/philosophy/selling.html

Is it legal to sell GPL software? 2/2

https://www.techrepublic.com/blog/linux-and-open-source/is-it-legal-to-sell-gpl-software/

- **Charge for the software**
  - *“You can charge nothing, a penny, a dollar, or a billion dollars. It's up to you, and the marketplace, so don't complain to us if nobody wants to pay a billion dollars for a copy”*
  - **“As much as you wish" only applies to the executable form of the software, not its source code**. This is explained in 6a and 6b of the GPL: if you want to sell a binary copy of a GPL software program, you must include either its complete source code or a written, formal offer valid at least three years to provide it to whoever possesses the binary. One has to provide:
    - A copy of the complete sources for a price no more than your reasonable cost of physically delivering them, or
    - “Access to copy [the complete sources] from a network server at no charge"

INTERESTING THINGS ABOUT PROTECTION

For how much time one can get protection (who does how)

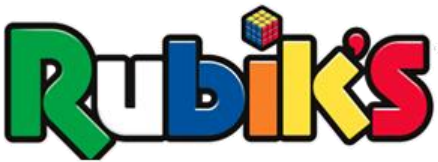
Photos

Music

For how much time one can get protection? 1/3

- Utility model
- Patent
- Industrial design
- Copyright
- Trademark

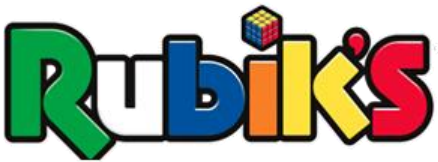
- QUESTION: which rights are applied by  or



For how much time one can get protection? 1/3

- Utility model: 6-10 years
- Patent: 20 years
- Industrial design: max 25 years
- Copyright: 50 years after the creator’s death
- Trademark: arbitrary long

- QUESTION: which rights are applied by  or



For how much time one can get protection? 2/3

- Originally was developed as a medicine drink
  - This could have been patented, but after 20 years it would have been utilized by any and its formula would be public
- It was not even worth to have an industrial design or copyright (both would have been over in the first half of the last century)
- Trademark is the everlasting protection for a given brand ☺
- As a refreshment drink, the recipe is still a secret
  - If something is complex enough from chemical point of view, then it is a good approach
  - It is on the market for more than 100 years without any “real” copy

For how much time one can get protection? 3/3

- Patent and industrial design was a natural idea, however, these protections are over now
- The trademark is an everlasting protection for the brand, but due its particular content it is under strong disputes
  - It is complex legal interpretation of what can be defined as a 3D trademark, and what type of protection it can give in practice
- Rubik’s cube is also protected as an authorial work under copyright
- Some “fun fact”: there is a cooperation with GAN corp. to produce competition grade speedcubes

New times with new questions

- New technologies open new questions about authorial works
  - More than 100 years ago all types of authorial works were greatly relied on the authors' personality and talent
  - However, what is an original authorial work originated from creative work today?
    - Think about built in apps in mobiles and computers
    - Think about Artificial Intelligence (AI), like in text or even scientific paper generator ("joke" results from scientific point of view, but considerable work behind the generator engine)
    - For example, check: https://pdos.csail.mit.edu/archive/scigen/
      - The Influence of Probabilistic Methodologies on Networking: https://pdos.csail.mit.edu/archive/scigen/steeve.pdf

Think about photos (1/2)

- What about the subject/model of the photos?
  - In the past a photo was taken if
    - Someone paid for the photo: photographer was rented for the work, typically the rights went directly to the one who ordered the photo
    - The photographer paid for the model, then rights remained at the photographer, who can sell the photo → still typical approach in current fashion model business
  - Many media players hire paparazzi to take photos “secretly” instead of paying for the model
    - This approach proves that the value of the photo relies only on the subject/model nowadays
    - Why the model cannot use such paparazzi photos made of her/him without any approval of the model?

Think about photos (2/2)

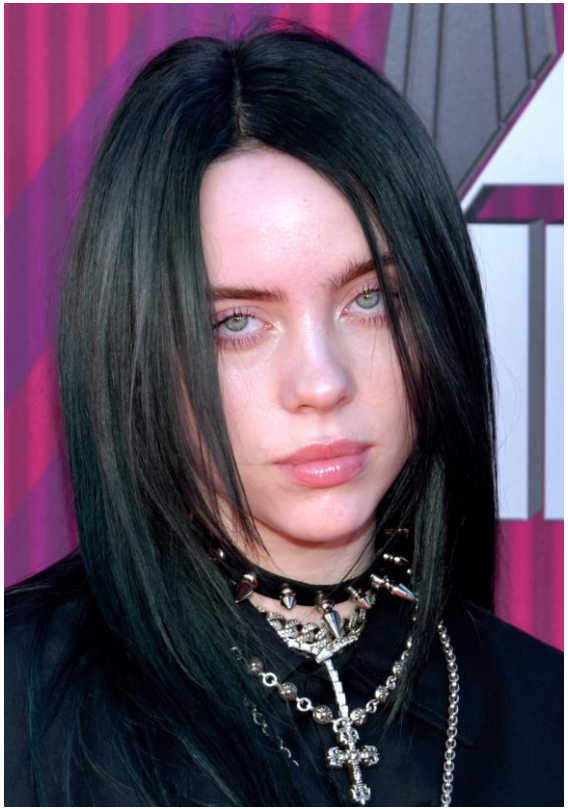
- What was a challenge 100 years ago, now just a push on a button
- Consider the case of the monkey with the camera
  - Who owns the image: the monkey or who owned the camera itself?
    - Check: Monkey selfie row - BBC News at YouTube
  - According to US copyright law, the copyright cannot belong to non-human
  - So, if a photo is taken by an animal or a machine, it belongs to the public domain, and can be used by anyone for any purposes

Source: YouTube, BBC News & Wikimedia

Think about music (1/2)

- It is very hard to compose and present something really unique
  - Consider the exception of Billie Eilish winning 5 Grammy Award at age of 18 due to her fresh novelty

- Citations from distinguished composers:
  - "*It is almost impossible to present something really new*" since "*basic melody phrases and accords*" practically "*belong to the public domain today*"



Source : © Glenn Francis, www.PacificProDigital.com

Think about music (2/2)

- Artificial Intelligence can produce such music, which sounds like a real melody
- Check the composition by Aiva Technologies

Source: YouTube & Aiva Technologies

- Furthermore, what would happen if some would protect all variations of data of <=10MBytes
  - In this case no one would be allowed to create any MP3, WAV files, thus indirectly no music in the future

Generative AI

- Google's generative AI rules in their services
  - *“We do not claim ownership of the original content created by our AI-based services.”*
- Many argues that the learning input to the generative AI’s is so directly used by gen AI tools that it is against their copyright
  - E.g., painting, images, poems, books, computer codes, etc. used as training set for the AI
- This area must be ruled carefully, similarly to the music and photography, where the rules do not really conform to the reality of 2020s

Further useful links

- WIPO Copyright Treaty (WCT)
  http://www.sztnh.gov.hu/jogforras/Copyright_Treaty.pdf
- Creative Commons
  - http://creativecommons.org/ and http://en.wikipedia.org/wiki/Creative_Commons
- Software
  - https://en.wikipedia.org/wiki/GNU_General_Public_License
  - https://en.wikipedia.org/wiki/BSD_licenses
  - https://en.wikipedia.org/wiki/MIT_License

CONTRACTED TRANSFERS

Know-how, Franchise

Know-how (1/2)

Source:
https://definitions.uslegal.com/k/know-how-intellectual-property-rights
https://en.wikipedia.org/wiki/Know-how

- In the context of intellectual property (IP), know how is a **component in the transfer of technology in national and international environments**, co-existing with or separate from other IP rights such as patents, trademarks and copyright and is an economic asset
  - When it is transferred by itself, know-how should be converted into a trade secret before transfer in a legal agreement
  - Can relate to other IP rights
- It is considered an intangible property in which rights may be bought and sold
  - It is a contracted form, without direct regulation

Know-how (2/2)

Source:
https://definitions.uslegal.com/k/know-how-intellectual-property-rights
https://en.wikipedia.org/wiki/Know-how

- Know-how means any form of
  - **Technical information or assistance** relating to the manufacture or placing into operation of the said products
  - **Any practical knowledge, techniques, and skill** that are required to achieve some practical end
  - The technical skill which large groups of men acquire through extensively financed experimentation and cooperation
- Employee knowledge
  - Employees have a duty of good faith and fidelity until end of employment
    - “You must keep all information about your previous employment with us secret for 4 years” would be difficult to support because that person has to be able to use the skills and knowledge they learnt to gain employment elsewhere

Source: http://www.thefranchisebuilders.com/types-franchise-2/
https://www.companybug.com/types-of-franchises/

Franchise (1/5)

- Franchise is a network among independent firms, where the franchise holder transfers knowledge to the network
  - There are two major types based on how the know-how transfer is done

- Know-how #1: **Product Distribution Franchise**
  - Similar to supplier-dealer relationship, however, the franchisee is required to observe a few guidelines, e.g., agreeing to sell only the franchisor's brand exclusively
  - Deal mainly with large products such as automobiles and auto repair parts, and vending machines

Source: http://www.thefranchisebuilders.com/types-franchise-2/
https://www.companybug.com/types-of-franchises/

Franchise (2/5)

- Know-how #2: **Business Format Franchise**
  - The franchisee distributes the franchisor's products and services under the franchisor's trademark, as well as implements the franchisor's format and procedure of conducting the business

- **Management Franchise**
  - The focus is not only on transferring the know-how
  - It is a form of service agreement whereby the franchisee provides the management expertise and/or procedure for conducting the business

Franchise (3/5)

Top global franchises (2018)

Source: http://www.thefranchisebuilders.com/types-franchise-2/ https://www.franchisedirect.com/top100globalfranchises/rankings

1. McDonald’s (Fast Food)
2. KFC (Chicken)
3. Burger King (Fast Food)
4. Pizza Hut (Pizza)
5. 7 Eleven (Convenience Store)
6. Marriott International (Hotel)
7. RE/MAX (Real Estate)
8. Dunkin' Donuts (Bakery & Donut)
9. InterContinental Hotels and Resorts (Hotel)
10. SUBWAY® (Sandwich & Bagel)
11. Baskin-Robbins (Ice Cream)
12. Domino's Pizza (Pizza)
13. Taco Bell (Fast Food)
14. Ace Hardware Corporation (Home Improvement Retail)
15. Jani-King Commercial Cleaning Services (Commercial Cleaning)
16. Wyndham Hotels and Resorts (Hotel)
17. Hertz (Car Rental & Dealer)
18. Carrefour (Convenience Store)
19. Europcar (Car Rental & Dealer)
20. Choice Hotels (Hotel)

Franchise (4/5)

Top global franchises (2019)

Source: http://www.thefranchisebuilders.com/types-franchise-2/ https://www.franchisedirect.com/top100globalfranchises/rankings

1. McDonald’s (Fast Food)
2. Burger King (Fast Food)
3. Pizza Hut (Pizza)
4. Marriott International (Hotel)
5. KFC (Chicken)
6. Dunkin' Donuts (Bakery & Donut)
7. 7 Eleven (Convenience Store)
8. SUBWAY® (Sandwich & Bagel)
9. Domino's Pizza (Pizza)
10. Baskin-Robbins (Ice Cream)
11. Hertz (Car Rental & Dealer)
12. InterContinental Hotels and Resorts (Hotel)
13. Taco Bell (Fast Food)
14. Choice Hotels (Hotel)
15. Wendy’s (Fast Food)
16. Groupe Auchan (Food & Grocery Retail)
17. Ace Hardware Corporation (Home servies)
18. Hilton Hotels and Resorts (Hotel)
19. Groupe Casino (Food & Grocery Retail)
20. Carrefour (Convenience Store)

Franchise (5/5)

Top global franchises (2021)

Source: http://www.thefranchisebuilders.com/types-franchise-2/ https://www.franchisedirect.com/top100globalfranchises/rankings

1. McDonald's (Food)
2. KFC (Food)
3. Burger King (Food)
4. 7-Eleven (Retail)
5. Domino's (Food)
6. Ace Hardware Corporation (Home services)
7. Century 21 (Real estate)
8. Papa John's (Food)
9. Taco Bell (Food)
10. Pizza Hut (Food)
11. Wendy's (Food)
12. Dunkin' Donuts (Food)
13. SUBWAY (Food)
14. Chick-fil-A (Food)
15. Tim Hortons (Food)
16. Marriott International (Hotel)
17. SERVPRO (Home services)
18. Jersey Mike's (Food)
19. RE/MAX (Real estate)
20. Interim HealthCare (Senior care)

THANK YOU FOR YOUR ATTENTION!