Privacy and Intellectual Property Rights

Software Patents

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Patent

- A *Patent* is a legal tool granting exclusive rights to an inventor

- Aimed at promoting innovation and inventions

- Has territorial range (granted by a state)
- Has a time range (limited number of years)
- Requires disclosure of the invention

Patent

- Normally managed by Patent Offices
- Requires yearly payment of a fee

- Enforcement: only if activated by p.owner

- Copyright default (=no explicit c. statement): nobody can use unless has your permission
- Patent default (=no p. requested): everybody can use without your permission

Main sources

- European Patent Convention
- Title 35 of the United States Code
- International agreements
  (TRIPS – Agreement on Trade Related Aspects of Intellectual Property Rights)

Patent Law

European Patent Convention:

Article 52 Patentable inventions

(1) European patents shall be granted for any inventions which are susceptible of **industrial application**, which are **new** and which involve an **inventive step**.

(2) The following in particular shall **not** be regarded as inventions within the meaning of paragraph 1:

(a) discoveries, scientific theories and **mathematical methods**;

(b) aesthetic creations;

(c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;

(d) presentations of information.

Patent Law

European Patent Convention:

Article 54 Novelty

(1) An invention shall be considered to be new if it does not form part of the **state of the art**.

(2) The state of the art shall be held to comprise everything made **available to the public** by means of a written or oral description, by use, or in any other way, **before the date** of filing of the European patent application.

Patent Law

European Patent Convention:

Article 56 Inventive step

An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is **not obvious to a person skilled in the ar**t. If the state of the art also includes documents within the meaning of Article 54, paragraph 3, these documents are not to be considered in deciding whether there has been an inventive step.

Patent Law

European Patent Convention:

Article 57 Industrial application

An invention shall be considered as susceptible of industrial application if it **can be made or used in** any kind of industry, including agriculture.

Patent Law

European Patent Convention:

Article 83 Disclosure of the invention

The European patent application **must disclose** the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

Patent Law

U.S. Code Title 35:

§101. Inventions patentable

Whoever invents or discovers any **new** and **useful** process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title

Excluded from patent protection are laws of nature, physical phenomena and abstract ideas.

see Gottschalk v. Benson, 409 U.S. 63 (1972): "Direct attempts to patent programs have been rejected [and] indirect attempts to obtain patents and avoid the rejection ... have confused the issue further and should not be permitted."

Patent Law

U.S. Code Title 35:

Novelty: §102. Conditions for patentability; novelty and loss of right to patent

Originality, non-obviousness: §103. Conditions for patentability; non-obvious subject matter

Patent Law

U.S. Code Title 35:

§112. Specification

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such **full, clear, concise, and exact** terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention

Is Software Patentable?

it is important to remember that neither "software" nor "data structures" are per se patentable

(as such)

However.....in USA

1970s: **No** Protection if Invention Used a Calculation Made by a Computer;

1980s: The Supreme Court Says **Some** Computerized Inventions are Patentable;

1990s: The Federal Circuit Says **Almost All** Software is Patentable.

A device that uses software...

The USPTO maintained the position that software was in effect a mathematical algorithm, and therefore not patentable, into the 1980s. This position of the USPTO was challenged with a landmark 1981 Supreme Court case, Diamond v. Diehr. The case involved a device that used computer software to ensure the correct timing when heating, or curing, rubber.

-> **the court essentially ruled that while algorithms themselves could not be patented, devices that utilized them could**

Software Patents in the U.S.

Diamond, Commissioner of Patents and Trademarks v. Diehr and Lutton, 450 U.S. 175 (1981):

> We view respondents' claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula. We recognize, of course, that when a claim recites a mathematical formula (or scientific principle or phenomenon of nature), an inquiry must be made into whether the claim is seeking patent protection for that formula in the abstract.
>
> Because we do not view respondents' claims as an attempt to patent a mathematical formula, but rather to be drawn to an industrial process <450 U.S. 193> for the molding of rubber products, we affirm the judgment of the Court of Customs and Patent Appeals

Software Patents in the U.S.

Diamond, Commissioner of Patents and Trademarks v. Diehr and Lutton, 450 U.S. 175 (1981):

- Software can be patented if implemented in a “machine”
- "laws of nature, natural phenomena, and abstract ideas” cannot be patented

Software Patents in the U.S.

In re Alappat, 33 F.3d 1526 (Fed. Cir. 1994):

> A general purpose computer programmed for a specific task can be patented

Finally.....

by the early 1990s the patentability of software was well established, and in 1996 the USPTO issued Final Computer Related Examination Guidelines

In Europe

Article 52 EPC excludes "programs for computers" from patentability (Art. 52(2)) to the extent that a patent application relates to a computer program "as such" (Art. 52(3)).

This has been interpreted to mean that any invention which makes a non-obvious "technical contribution" or solves a "technical problem" in a non-obvious way is patentable even if that technical problem is solved by running a computer program.

Problems with Software Patents

Is Software Patentable?

Claim and specification:

- Disclosure does not regard source code
- Disclosure: abstract description of computational ideas

Criticism: Actual usage moved from protection to prevention of innovation and competition

Mobile Phone market

- estimated 250K patented technology in a mobile phone (2012) [1]

- Apple – Samsung [2]
- Rockstar – Google [3]

[1] http://www.techdirt.com/blog/innovation/articles/20121017/10480520734/there-are-250000-active-patents-that-impact-smartphones-representing-one-six-active-patents-today.shtm

[2] https://knowledge.wharton.upenn.edu/article/the-apple-samsung-case-what-it-means-for-patents-and-innovation/

[3] https://arstechnica.com/tech-policy/2013/10/patent-war-goes-nuclear-microsoft-apple-owned-rockstar-sues-google/

Software Patents and Free Software

Software patents can be used to stop free software development:

- No idea/expression dichotomy
- No reverse engineering
- Long protection for the software industry