

# Databases and Patents

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Database management systems (DBMS) are, as any other software, the result of a software engineering activity, i.e. an intellectual activity; whereas the data "managed" by a DBMS are the products of a different type of activity, as commercial sales, business intelligence, research, etc. This difference, which is trivial for a database expert, may result important for a company that is trying to protect its own know-how, because the core parts of a DBMS, which may be the reason of a commercial success for a software product, can be protected in more a more effective way than the mere data. The core parts of a DBMS (like indexing algorithms, query engines, sorting methods, etc.) are usually the product of ideas, which may be protected through one or more patents, whereas the data can be only protected through copyright or industrial secret. This means that whether the data become public, a competitor cannot reuse it without contravening owner's right (i.e. competitor has to ask for a license), whereas if the data are not public (i.e. an industrial secret), a person infringes data's proprietor rights only if him/her steals said data.

Copyrights also exist on software, but they can be used for protecting a specific implementation of an idea, which may be not enough against reverse engineering of a software product, because the result of such activities is a software different from the original one; hence, the outcome of enforcing copyrights on a software, which is the product of a reverse engineering activity, may be very uncertain. On the contrary, patent rights can be usually enforced with a lower level of uncertainty, but obtaining a granted patent on a (piece of) software may be not so easy for inventors; indeed, the granting proceedings before a national or regional patent office (like European Patent Office - EPO) requires particular legal competences from the very beginning of the patenting process, i.e. the drafting of a patent application. For this reason, a large number of patent applications are drafted by patent attorneys, who have both technical and legal competences. This makes possible for them to understand whether the "product" of a research activity can be protected through a patent or any other type of industrial property title (e.g. utility model, software registration, etc.).

In this one-page note, I am going to provide some hints to software engineers and researchers in order to evaluate whether the "product" of their intellectual activities can be patented or not. These hints may be particular useful for young academic researchers, or researchers working in public research institutes, at the beginning of their careers for better focusing the research activity in order to achieve results which can be protected through one or more patents.

Patenting can also produce benefit for obtaining research funds, e.g. by selling licenses on patent rights to a private firms, or doing technology transfer, e.g. by transferring patent rights to start-up companies, etc.

First of all, the researchers must know that, in Europe, computer programs (i.e. software) as such [1] are not considered inventions; hence, computer programs as such are not patentable. A lot of decisions have been issued by the Boards of Appeal of European Patent Office on this specific topic, in particular on the meaning of the words "as such" [2], and today it is possible to state that a method, which can be executed on a computer machine, and solves a technical problem can be protected through a patent application. More in details, a technical problem is

something that can be solved by technical means which, in the software engineering area, usually comprise a computing machine configured for executing a sequence of methods steps which produce a technical effect, and wherein a technical effect is something that can objectively measured and/or detected. Examples of technical problems are in the following: reduce the time necessary for executing a query, increase the throughput of a database server, etc; example of non-technical problems are the following: make an user interface more attractive, make a query language easier to use, etc..

Secondly, the researchers must also know that the subject-matter of a patent application must be new; this means that the idea underlying their invention must not be disclosed in a paper or in a public conference all over the world before the filing date of a patent application having said idea as subject-matter [3].

Finally, in order to summarize the content of this note, I would like to remember my hints for the researchers who want to protect their own ideas through one or more patents:

- 1) check that your idea solves a technical problem;
- 2) check that your idea has not already been published, if it is not, do not publicly disclose your idea until your patent application/s has/have been filed;
- 3) contact the technology transfer office (TTO) of your institution before contacting a patent attorney, so as to avoid contravening national law and/or your institution regulations.

## References

[1] Article 52, paragraphs 2(c) and 3, of European Patent Convention - Patentable Inventions - <http://www.epo.org/law-practice/legal-texts/html/epc/2013/e/ar52.html>

[2] Case Law of the Boards of Appeal (of the EPO) 2013, par. I.A 2.4.1 - Introduction to Computer-Implemented Inventions - [http://www.epo.org/law-practice/legal-texts/html/caselaw/2013/e/clr\\_i\\_a\\_2\\_4\\_1.htm](http://www.epo.org/law-practice/legal-texts/html/caselaw/2013/e/clr_i_a_2_4_1.htm)

[3] BOARD OF APPEAL AND ENLARGED BOARD OF APPEAL CASE LAW 2012/2013, par. B.1 - Defining the state of the art - <https://www.epo.org/law-practice/legal-texts/official-journal/2014/etc/se5/p25.html>

## Author's Bio:

Mirco Bianco has a Master's Degree in Computer Engineering from University of Genoa and a Ph.D. in Computer Science from Free University of Bolzano/Bozen. He is a licensed engineer (Ing.) and an Italian Patent Attorney.

Mr. Bianco was Teaching Assistant at Free University of Bolzano/Bozen, Faculty of Computer Science (2007-2010), and is the author of various publications on matters related to software development processes.

During the period spent in the Ph.D. School of the Free University of Bolzano/Bozen, his research activities were focused on the measure and control of the different aspects of software development process. Furthermore, Dr. Bianco has developed System Query Language (SyQL); SyQL is a data manipulation language, which allows the user to access data stored in a temporal database by using fuzzy logic. This language is designed to extract and interpret software and process data coming from the software development process.

Actually, Dr. Bianco works as patent attorney in Metroconsult Roberto Dini and Partners (<http://www.metroconsult.it/en/>). His main activities include the preparation and the prosecution of patent applications primarily in the field of electronics and telecommunications.