# Analyses and Opinions w.r.t. the Decision of the European Parliament regarding Software Patents

July 3rd, 2005

## Contents

# 1 An Empirical Look at Software Patents [BH03]

Empirical study on the effects of software patents on investments in innovation in the US.

- Software patents have in the US resulted in a transfer of ressources from R&D to patenting activities.
- More patents meant less innovation, even within the companies that patented most.
- Most software patents are owned by large hardware companies and obtained for strategic purposes rather than for preventing imitation of products.
- Software patents hinder instead of encourage innovation in fields where most innovation is incremental, such as in software development.

# 2 Innovation in Germany – Windows of opportunity [Hof04]

Report of Deutsche Bank for the German government regarding how to promote innovation.

- "Stronger IP protection is not always better. Chances are that patents on software, common practice in the US and on the brink of being legalised in Europe, in fact stifle innovation. Europe could still alter course. "
- "Opportunity 3: Set up a well-balanced IP protection regime that keeps fostering the creation and diffusion of ideas."
- "Measures to take. The German government is among the tentative critics of the EU software patent bill. This position should be bolstered, by (1) putting forward academic evidence and (2) making SMEs' concerns heard. SMEs are crucial providers of pathbreaking innovations, but would be most adversely affected by patentability."

# 3 Opinion of the Economic and Social Committee [Ret02]

ESC is the main consultative organ of the EU, its opinion was approved by plenary vote.

- Commission text allows patents on software executed by a computer.
- Commission text simply codifies legally questionable EPO practice.
- Commission text does not prevent patents on business (or on any other) methods.
- Commission text does not preserve interoperability, confuses matters further instead.
- Doubts about intention of Commission, which talks about several irrelevant things (such as piracy) in its introduction.
- "No effective economic analysis has shown the alleged benefit for SMEs-SMIs of patents for 'computer-implemented inventions'."
- "It is hardly plausible to have us believe that the directive would only be a sort of reversible three-year experiment, at the end of which an assessment would be made."

- "For the most part, the opinion that has been credited is that of a dozen large software houses, most of which are not European. Furthermore, an opposing opinion from other large firms has been ignored, as have some counter-proposals which advocate a sui generis regime or an adapted utility model."

- "Is it wise in today's world to widen the scope of patents, tools of the industrial age, to intellectual works which are immaterial, such as software, and to the results of running software on a computer?"

- "In its present form, the proposal clearly runs the risk of overturning the legal arrangements for software and other intellectual works, which would be in breach of the conventions administered by the World Intellectual Property Organisation (WIPO) and the WTO agreements on intellectual property rights in trade."

# 4 Software Patents: a closer look at the European Commission's proposal [Ros05]

Legal-economic study by a law and economics scholar from the University of Sienna, Italy. This paper is part of the proceedings of the 2005 conference on European Policy on Intellectual Property.

- (about the Commission proposal) "The main problem with the approach taken by the Proposal is that it establishes a set of conditions for patentability whose only meaningful and consistent interpretation coincides with a significant extension of patentability, close to the situation corresponding to a deletion of art.52(2) and (3)."

- "All of the empirical studies we are aware of reveal that firms in the software industry, and especially SMEs, tend to rely predominantly on means other than patents in order to protect their innovations."

- "It is certainly true that patent holders' initiatives such as patent pools and cross-licensing may reduce the adverse consequences of patent-related transactional difficulties, but the question remains as to whether the overall benefits of software patents outweigh their costs, including the costs of devising these private solutions."

# 5 Rethinking the European ICT agenda [Pri04]

A report by PricewaterhouseCoopers for the Dutch Ministry of Economic affairs on the Lisbon agenda and how to reach its goals.

- "There are particular threats to the European ICT industry such as the current discussion on the patent on software. The mild regime of IP protection in the past has led to a very innovative and competitive software industry with low entry barriers."

- "Many large companies operating on a global scale, including European ones, seem to be in favour of a software patenting regime. But most small enterprises are strongly opposed."

- "Only very few European companies have prepared themselves for the consequences of a software patent regime. It raises the question how the introduction of the European software patent interacts with a European strategy based on widespread use of ICT's."

# 6 The Digital Dillemma: Intellectual Property in the Information Age [NRC00]

Book from the US National Research Council.

- Granting of software patents started in the US without oversight from the legislative branch (just like in Europe).
- Doubts about ability of US Patent Office to handle software patent related decisions, and whether it has enough knowledge and prior art information available.
- Software market is different from traditional industries: small or no market in 'components', most people write programs from scratch, no consultation of patent literature, high chances of infringement.
- Innovation in software development occurs more rapidly than in other industries, patents often granted after the technology has become obsolete.
- Software patents may cause the software industry to cease being a creative cottage industry, restricting it to large companies that cross-license.

# 7 EU-consultation by the Commission [Con00]

After an unexepected decision of the national governments to refrain from plans to change Art 52 of the European Patent Convention (EPC), the Commission announced another "consultation exercise". Previous consultations had involved only the peer group of the Industrial Property Unit, i.e. about 40 corporate patent lawyers, and asked only questions that were geared to this peer group. The new consultation was designed in the same way, but, due to the higher degree of public attention that the process had meanwhile reached, it received almost 1500 responses from unexpected quarters.

- What percentage of participants belonging to the following groups was against software patents:
  - Users: 99,6%
  - Students: 99,5%
  - Individuals: 98,5%
  - Academics: 98%
  - Software developers: 95,8%
  - SMEs: 95%
  - Large Enterprises: 81%
  - Associations: 45%

  - IP professionals: 33%
  - Governments: 22%

- The Commission concluded from the statements of a few associations such as EICTA and UNICE, whose patent policy is dominated by patent lawyers of large corporations, that an "economic majority" was in favor of software patents. However about two-thirds of the employment and tax revenues from the IT sector in Europe are provided for by SMEs (e.g. Germany: 80%; Belgium: employment 60%, no data on tax revenue).

# 8 To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy [ftc03]

The US Federal Trade Commission (FTC) conducted hearings to find out how the patent system promotes and/or inhibits competition in different fields. Its conclusions were bundled in a report with the above title.

- All industries are not the same, in the computer hardware and software industries patents are used more and more for defensive purposes. This results in patent thickets: overlapping and entangled patent rights of different companies, which means you have to obtain a license to all such patents before you can commercialise a product.

- The software industry is characterised by cumulative innovation, low capital costs, rapid consequential innovation and a short life span of products and alternative incentives for innovation such as copyright and Open Source. This is quite different from the hardware industry, biotech and pharmaceuticals.

- Innovation in the software industry is driven by competition.

- Software patents can inhibit consequential innovation and increase the entry cost. Avoiding infringement is expensive and uncertain.

- There are also large problems due to trivial patents.

- Quote from Robert Barr, Vice President and head of intellectual property at Cisco Inc (one of the market leaders in networking technology), from the hearings held in preparation of this report [1]:

  > "My observation is that patents have not been a positive force in stimulating innovation at Cisco. Competition has been the motivator; bringing new products to market in a timely manner is critical. Everything we have done to create new products would have been done even if we could not obtain patents on the innovations and inventions contained in these products. I know this because no one has ever asked me 'can we patent this?' before deciding whether to invest time and resources into product development.
  > [...]

[1] `http://www.ftc.gov/opp/intellect/barrrobert.doc`

> The time and money we spend on patent filings, prosecution, and maintenance, litigation and licensing could be better spent on product development and research leading to more innovation. But we are filing hundreds of patents each year for reasons unrelated to promoting or protecting innovation.
> [...]
> Moreover, stockpiling patents does not really solve the problem of unintentional patent infringement through independent development. If we are accused of infringement by a patent holder who does not make and sell products, or who sells in much smaller volume than we do, our patents do not have sufficient value to the other party to deter a lawsuit or reduce the amount of money demanded by the other company. Thus, rather than rewarding innovation, the patent system penalizes innovative companies who successfully bring new products to the marketplace and it subsidizes or rewards those who fail to do so."

# 9 Test on the Competitiveness [Pol02]

Study by the Dutch Ministry of Economic Affairs.

- "The importance of the IP-regime as far as innovation is concerned differs per sector. In the biotech and pharmaceuticals patents have an essential role given the long time to earn back investments. In the software sector developments are so quick that patents are used less to earn back investments."
- "Further, one should look at the innovation obstructions stemming from the trend of patenting enabling technologies (e.g. software) and broadly applicable business methods."

# 10 Intellectual Property and Innovation – On the role of intellectual property in the Dutch knowledge economy [ezm00]

Report of the Dutch Ministry of Economic Affairs.

- "A partial unplanned effect of more conscious handling of the IP and the patenting strategy of companies is the arising of the problem of the 'anti-commons'. Parties keep each other prisoner in a patent minefield. [...] Mainly the (high-tech) SMEs suffer from this strategic patenting."
- "Besides, patents are only part of the total knowledge strategy of companies. For most companies patenting is less important than secrecy and technological lead time."
- "Innovations of SMEs are relatively more encumbered by existing patent portfolios. They also experience more obstructions to patent things themselves."
- "Given the differences between sectors and the differences in company sizes, a differentiated patent system is an attractive option from an innovation point of view."

# 11 Discussion of European-level legislation in the field of patents for software [BH02]

Study ordered by the JURI Committee of the European Parliament, edited by the Directorate General Research of the European Commission.

- Notes general problems with patent system as a whole.
- Problem of 'trivial patents' can not be solved by improving examination.
- Software patents have caused a lot of problems in the US (both economical and administrative).
- Requirement of 'technical contribution' is too vague in Commission proposal and can easily be circumvented, may even not be relevant by Commission's own admission (in that it cannot prevent all business methods from being patented).

# 12 Report of the German Competition Commission (2002) [mok02]

- The Commission is concerned regarding the recent practice of patent offices and some courts to allow software patents.
- It criticises this practice as being illegal and harmful to innovation and competition.

# 13 The software economy: supporting the French dynamics [Rou02]

Report on the French software sector from 2002 of the French State Planning Commission on Economic Planning.

- Sees France's software economy handicapped by proprietary standards and patent dangers.
- Recommends that algorithms and business methods should not be patentable, formats and standards should be exempted and patents for technical inventions that use software should be limited in duration to 3-5 years.

# 14 Technology policy in the telecommunication sector: Market responses and economic impacts [Kos02]

Study ordered by European Commission's Directorate General Enterprises.

- Patents cause a lot of problems in the Telecom sector.
- Patents are mainly used strategically there (block competitors, make sure you are not blocked by a competitor), not to earn back investments.

# 15 Micro- en Macro-Economical Implications of the Patentability of Software-Innovations [BEN01]

Survey among several hundred companies by Fraunhofer Innovation Research Institute and Max-Planck Institute for Intellectual Property, ordered by patent department of German Ministry of Economics, all with heavy pro-patent bias, yet yielding the following results:

- Patents are the least used way and least significant means to protect investments in software development.
- Development time is very short and innovation occurs extremely rapidly in the software field compared to other fields.
- More incremental development in the software branch than in most other industries.
- Rapid innovation and effective development process even more important in software than in other fields, so obstacles to conducting development work are even more serious here.
- Interoperability is extremely important.
- R&D intensity has no influence on patenting behaviour.
- Basic rule as in other branches holds: bigger companies obtain more patents.
- "The theory that patents facilitate market access, above all for young companies, could not be confirmed."
- "The strategic benefit of patents in international competition is obvious, but concentrated on very few large companies."

# 16 The Economic Impact of Patentability of Computer Programs [HHR00]

This Commission-ordered study is mainly a juridical dissertation, but also contains an economical chapter.

- Juridically, it concludes that software patents are quite desirable (this study is often cited by both the Commission as well as proponents of software patents in the European Parliament), but economically, the conclusions are quite different.
- "As shown in our economic study of the literature (Section III of our report), most economists have doubts whether economic efficiency, i.e. increased overall welfare, is achieved by having or making computer program related inventions patentable. This caution is supported by the continuing, indeed growing, concern in the USA on the issues surrounding patents on computer program related inventions. The debate in the States is not finished."
- "There is no evidence that the positive effects stemming from owning software patents outweigh the following deep concerns:

  - that patents are being granted on trivial, indeed old, ideas and that consideration of such patents let alone attacking such patents is a major burden, particularly on SMEs and independent software developers;
  - that patents may strengthen the market position of the big players; and
  - that the computer program related industries are examples of industries where incremental innovation occurs and that there are serious concerns whether, in such industries, patents are welfare enhancing."

# 17 Opinion of the Committee of Regions [otR99]

Title of the relevant section: "The non-universality of patents systems: the case of software", signed by the heads of regional governments from all over Europe.

- "But for several years now, US case law has been led into allowing the issuing of patents for software 'components', a practice to which it had previously been hostile. And the US is putting increasing pressure on Europe to allow software patenting [...] Such a practice would threaten the progress of innovation in this industry, since it would lead to a compartmentalisation of knowledge and procedures, thereby preventing any interaction."
- "If the issuing of patents for software became institutionalised, it would strengthen the dominant position of the biggest US market leaders in the sector. It would be a direct threat to the huge number of innovating smaller firms in Europe, the USA and in other countries."

# 18 Patent protection of computer programmes [TAP01]

Study on the desirability of software patents ordered by the Directorate General Enterprises of the European Commission, performed by UK researchers among SMEs, large enterprises and research institutions.

- None of the examined groups makes a lot of use of patents to protect their (software) investments.
- SMEs think they will not have a chance when protecting patents in front of a court due to a lack of money.
- Given the short life span of computer programs, SMEs think they can better spend their time on the development of new programs, than on obtaining patents.
- Large companies patent more than small companies.
- "SMEs consider the creation and implementation of 'undesirable laws' as one of their primary concerns."
- "There is a general consensus that the patentability of software will probably pose a growing a concern for SMEs."

# 19 Opinion Committee for Cultural Affairs and Youth of the European Parliament [Com03a]

- "Technical" means "application of natural forces to control physical effects beyond the digital representation of information" (Article 2)
- Data processing is not a field of technology (Article 3)

# 20 Opinion Committee for Industry and Trade of the European Parliament [Com03b]

- Publication can never be an infringement (Article 5)
- Interoperability can never constitute patent infringement (Article 6a)

# References


[BEN01] Knuth Blind, Jakob Edler, and Ralf Nack. Micro- and Macroeconomic Implications of the Patentability of Software Innovations. Study on behalf of the German Federal Ministry of Economics and Technology, Fraunhofer-Institute for Systems- and Innovation Research (Fraunhofer ISI), Karlsruhe and Max-Planck-Institute for Foreign and International Patent, Copyright and Competition Law, Munich with the assistance of Fraunhofer Patent Centre for German Research (Fraunhofer PST), September 2001. http://web.archive.org/web/20041023192419/http://www.isi.fhg.de/ti/Soft_summary.pdf, presentation slides: http://web.archive.org/web/20061010211500/http://trendchart.cordis.lu/Reports/Documents/Edler_Lux_2003.ppt.

[BH02] Reinier Bakels and P. Bernt Hugenholtz. The patentability of computer programmes – Discussion of European-level legislation in the field of patents for software. Study Commissioned by JURI, University of Amsterdam (IViR), April 2002. http://www.europarl.europa.eu/hearings/20021107/juri/study%5Fen.pdf.

[BH03] James Bessen and Robert M. Hunt. An Empirical Look At Software Patents. Working paper, March 2003. http://www.researchoninnovation.org/swpat.pdf.

[Com03a] CULT Committee. Opinion of the Committee on Culture, Youth, Education, the Media and Sport for the Committee on Legal Affairs and the Internal Market on the proposal for a directive of the European Parliament and of the Council on the patentability of computer-implemented inventions (COM(2002) 92 - C5-0082/2002 - 2002/0047(COD)). Advice, January 2003. http://www.europarl.europa.eu/meetdocs/committees/juri/20030324/487019en.pdf.

[Com03b] ITRE Committee. Opinion of the Committee on Industry, External Trade, Research and Energy for the Committee on Legal Affairs and the Internal Market on the proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions (COM(2002) 92 – C5-0082/2002 - 2002/0047(COD)). Advice, February 2003. http://www.europarl.europa.eu/meetdocs/committees/juri/20030324/490455en.pdf.

[Con00] PbT Consultants. Analysis of replies to the Consultation Paper on the Patentability of Computer-Implemented Inventions. Technical report, December 2000. http://ec.europa.eu/internal_market/indprop/comp/analyses_en.htm.

[ezm00] Marktwerking en nieuwe ict-markten. Position paper, Ministery of Economic Affairs (NL), December 2000. http://www.ez.nl/dsresource?objectid=142813&type=PDF.

[ftc03] To Promote innovation: The Proper Balance of Competition and Patent Law and Policy. Report, Federal Trade Commission, October 2003. http://www.ftc.gov/os/2003/10/innovationrpt.pdf.

[HHR00] Robert Hart, Peter Holmes, and John Reid. The Economic Impact of Patentability of Computer Programs. June 2000. http://ec.europa.eu/internal_market/indprop/docs/comp/study_en.pdf.

[Hof04] Jan Hoffmann. Innovation in Germany – Windows of opportunity. Report, Deutsche Bank Research, June 2004. http://www.dbresearch.com/PROD/DBR%5FINTERNET%5FEN-PROD/PROD0000000000175949.pdf.

[Kos02] Heli Koski. Technology policy in the telecommunication sector: Market responses and economic impacts. Technical report, August 2002. http://ec.europa.eu/enterprise/library/enterprise-papers/paper8.htm.

[mok02] Monopolkommission report 2002. Technical report, German Competition Commission, July 2002. http://www.monopolkommission.de/haupt%5F14/sum%5Fh14.pdf.

[NRC00] National Research Council. *The Digital Dilemma: Intellectual Property in the Information Age*. National Academy Press, 2000. http://www.nap.edu/openbook.php?record_id=9601.

[otR99] Committee of the Regions. The competitiveness of European enterprises in the face of globalisation - How it can be encouraged. Advice, November 1999. http://coropinions.cor.europa.eu/CORopinionDocument.aspx?identifier=cdr%5Ccommission6%5Cdossiers%5Ccom6-011%5Ccdr134-1999%5Ffin%5Fac.doc&language=EN.

[Pol02] Executive Board General Economical Politics. Toets op het concurrentievermogen. Report, Ministry of Economic Affairs (NL), January 2002. http://www.ez.nl/content.jsp?objectid=17036.

[Pri04] PricewaterhouseCoopers. Rethinking the european ict agenda. Report, 2004. http://www.ez.nl/dsresource?objectid=62435&type=PDF.

[Ret02] Daniel Retureau. Opinion of the Economic and Social Committee on the "Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions". Opinion, European Economic and Social Committee, September 2002. http://eescopinions.eesc.europa.eu/EESCopinionDocument.aspx?identifier=ces%5Cint%5Cint145%5Cces1031-2002%5Fac.doc&language=EN.

[Ros05] Maria Alessandra Rossi. Software patents: a closer look at the european commission's proposal. In *Proceedings of the 5th EPIP Conference European Policy for Intellectual Property*, March 2005. http://web.archive.org/web/20050519012709/http://www.epip.ruc.dk/Papers/ROSSI_Paper.pdf.

[Rou02] Hugues Rougier. Economie du logiciel: renforcer la dynamique française. Technical report, Commissariat général du plan, France, October 2002. http://www.ladocumentationfrancaise.fr/rapports-publics/024000561/index.shtml.

[TAP01] Puay Tang, John Adams, and Daniel Paré. Patent protection of computer programmes. Technical report, European Commission, Directorate General Enterprises, 2001. http://swpat.ffii.org/papri/tangadpa00/tangadpa00.pdf.