Should software be patentable?

Despite the European Parliament's decision to reject a directive that would have ended the right of companies to patent software-related inventions, the debate continues.

By Andrew Woolls-King and Steven Keeping

Photography: Storm Scott, Michel Klop, Philips

Existing European patent laws allow inventions in fields such as consumer electronics, medical, automotive and telecoms to be patented even when the invention is implemented in software. However, this state of affairs recently came under threat from a draft European Union (EU) directive that proposed eliminating patent protection any such 'Computer-Implemented Invention' or 'CII'.

"The rejected proposal was originally designed to harmonize and clarify existing patent procedures across EU member states," explains Arnoud Engelfriet, a patent attorney with Philips Intellectual Property and Standards (IP&S).

"But it also included a section that would have outlawed the patenting of all high-tech inventions within the EU," he says. "Although the logic behind this was well intentioned, it meant that instead of the proposal being a necessary review and update of existing procedures, it was proposing a brand new paradigm with potentially huge drawbacks for high-tech companies in Europe."

Although the proposal was rejected by majority vote in July, the decision is of such significance that the opposing camps refuse to let the issue lie.

For his part, Engelfriet is happy. "I am pleased the EU had the courage and foresight to return the correct vote," he says.

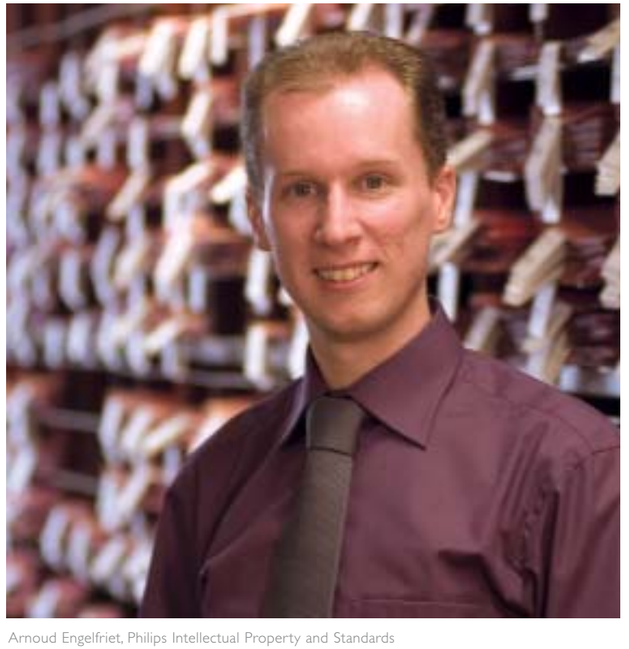
But others are less convinced. "The Open Source community says the decision stifles innovation," explains Professor Paul Klint of the University of Amsterdam, who is also head of software engineering at the nearby CWI mathematics and computer science research institute. "And small to medium-sized enterprises [SMEs] say it gives larger competitors an unfair advantage because the patent process has become so convoluted that without a large legal team it is almost impossible to navigate."

"This is a viewpoint I support. While I am not against the principle of patenting software, I do feel that the patenting of software under the rules and regulations of the current system is too complex," continues Klint. "It is based on a system that hasn't really changed since the 18th century and is struggling to cope in the 21st."

"The system could be better," admits Engelfriet, "in the sense that smaller companies can find it difficult to know what is and isn't covered by patents. But if this is the case, then the debate should really be about further enhancing the existing system, not whether or not there should be an existing system."

Engelfriet also cites the commercial impact of removing patent protection, pointing out that the CII directive would have wiped away around two-thirds of the patents currently in place within the European high-technology industry.

"Any unique product or technology that employed a silicon chip would not have been protected anymore," he notes.



Arnoud Engelfriet, Philips Intellectual Property and Standards

Gerard de Haan, Philips Research

A veil of secrecy

Professor Gerard de Haan, a Research Fellow within the video processing group at Philips Research, and the inventor of the 100-Hz television, believes innovation will always be important to commercial companies, but that by removing protection, collaboration would likely be stifled. Moreover, inventors would spend time and effort hiding their innovations under a veil of secrecy.

"To remain competitive, companies have to invest in R&D, even if their inventions can no longer be protected," says Professor de Haan. "But a likely consequence of removing protection is that companies would become reluctant to share ideas."

> "Mixing politics and technology will do nothing but confuse the issue."
> Arnoud Engelfriet, Philips Intellectual Property and Standards (IP&S)

"For example, in my field of image processing, one can observe a shift from implementation of innovations on a specialized ASIC (Application-Specific IC) towards implementation on general-purpose chips," he explains. "In the latter case, the innovation is not in the silicon, but rather in the software that programs the silicon."

"Had the CII EU directive been passed, the trend towards software innovation wouldn't have changed, but companies would have tried to hide what they're doing, and prevent software copying," says Professor de Haan. "It's hard to see that being an advantage over an open climate where everyone can profit from each others experience – even if required to pay back the inventor to cover his investment."

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Professor de Haan is keen to ensure that the patent system rewards genuine innovation and isn't abused to protect ideas that are notable, but aren't genuine inventions.

"We need protection for all innovative ideas," he says. "The question of whether something is innovative then becomes the issue. Perhaps a benchmark could be that peers recognize a software innovation as a smart, unique idea and wonder how it has been done."

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"If, on the other hand, colleagues recognize the software as 'nicely written code' it's unlikely to require any protection other than copyright." (See box 'Avoiding trivial pursuits'.)

Paul Klint, Center for mathematics and computer science (CWI), and University of Amsterdam

Forcing the issue

While there will be no re-consideration of the proposed directive in its current form, the issue has a momentum that's hard to stop. Engelfriet believes much of the impetus is driven by politics: "It's unfortunate that some supporters of the draft bill are attempting to turn what is a very important technology debate into an anti-corporate campaign. But mixing politics and technology will do nothing but confuse the issue."

However, Professor Paul Klint thinks continued debate is a good thing because "at some point the EU will have to draw a distinction between embedded software and 'other' software".

"A lot of the animosity is targeted at 'other' software rather than electronics companies trying to protect the software embedded into their products," he says.

For now though, the decision stands and supporters believe CII patent rules will help retain the competitiveness of the European high technology industry. "Certainly, while far from perfect, Europe's patenting system is still one of the best systems in the world and has allowed Philips to protect its own products and share its technology through licensing. Although a large part of our licensing programs focus on licensing patented technology, we more and more move towards 'technology licensing'," says Engelfriet. "We give third parties access to our patents and also supply them with all the development and technical support required to get them up to speed – allowing these companies to build their own innovations on ours."

Professor de Haan agrees this is a plus for the current system but looks forward to more. "We must always remember that patents were invented to protect the inventor and to promote wide knowledge sharing," he says.

"That said, I have a vision of a modern system based on these guiding principles that allows the Open Source community, SMEs and large corporations to work side-by-side and drive European innovation to new heights."

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Avoiding trivial pursuits

Professor Paul Klint expresses concern about the number of successful 'trivial' patent applications. "I've seen US software patents, for instance, covering 'to do lists' and the allocation of memory in data sorting algorithms that occur in almost every single computer application you can think of," says professor Klint. "In my opinion, this trivial patent application process is being performed by many of the largest software companies in the world."

It's a view seconded by Professor Gerard de Haan. "The US system relies heavily on judges to identify and decide whether a filed trivial patent should be rejected as part of an infringement case," he says. "Unfortunately, this makes it a laborious and legal intensive process compared to the simple alternative of rejecting trivial filings at the application stage."

In Europe this triviality is avoided by ensuring that a non-obvious technical contribution must be demonstrated by the invention, although opinions can differ on how effective this is. Similarly, Japanese patent issuers insist the invention must be a highly advanced creation of technical ideas by which a law of nature is utilized. In contrast, the US argues the invention must simply be within the useful arts and no technological contribution is needed.

Patent life cycle