

IBM Europe
Response to the Services of the Directorate General for the Internal Market
The Patentability of Computer-Implemented Inventions
Consultation Paper of 19.10.2000

Executive Summary

The consultation paper is structured to include a number of elements (i) to (vii) with associated comments on patentability of computer-implemented inventions and invites a response to two issues. The first issue is whether harmonisation should proceed on the basis of the elements (i) to (vii), or whether it should take a more restrictive approach, or whether it should take a more liberal approach. The second issue is the impact that harmonisation would have.

Harmonisation of national patent laws must proceed in a manner consistent with the European Patent Convention and with the international obligations imposed by the TRIPS Agreement. IBM believes **harmonisation should occur along lines which endorse the current practice and case law of the European Patent Office**. We oppose either a more restrictive or a more liberal approach to patenting.

In regard to the impact of harmonisation this approach would,

- Have a **positive impact on innovation in software and underlying knowledge and techniques because it would provide more certainty** as to the standards and practices in granting and evaluating patents.
- Endorse the present practice of the European Patent Office and consequently **avoid any dramatic change in the extent of patentable subject matter**.
- Improve the position of the European software industry because it would **provide clarity** in this specialist subject.
- **Contribute to the clear legal framework** needed to support the policy measures being taken in relation to the Information Society.
- **Give SME's more encouragement to obtain patents** because they would find it easier to apply for them if the law on patents was harmonised and capable of a clear unambiguous explanation regarding patentability.

Introduction

IBM has research and development laboratories located in Europe and elsewhere working in all areas of information technology and making a major contribution to technology leadership. **Over 90,000 people in the European region are employed by IBM.**

IBM is a leading participant and strong supporter of open source software in Europe and elsewhere. IBM will invest more than \$200 million in a series of Linux initiatives in Europe over the next four years. These investments will include Linux development centres across Europe, alliances with Linux-focused business partners, along with the rapid deployment of about 600 specialised Linux consultants, hardware and software specialists, and services professionals. We have opened a series of European development centres to help Independent Software Vendors transition their applications to an industrial strength Linux environment. These centres are located in Paris and Montpellier in France; Greenock and Hursley in the UK; Boeblingen in Germany; Warsaw in Poland; and Budapest in Hungary.

IBM has laboratories in Europe located in Boeblingen (Germany), Hursley (UK) and Zurich (Switzerland) employing 3300 research and development personnel and is a major manufacturing employer with over 10300 manufacturing employees. Boeblingen has made numerous contributions to the software industry from operating system software to software enabling workflow and videostreaming, data mining and pervasive computing. Specific business solutions include digital library solutions, speech recognition, banking applications, postal solutions and data management software. Hursley has expertise in business integration and very high volume transaction processing. The product and solutions set produced at Hursley combine to form the engine that enables e-business. Hursley software products run much of the global business for many of the leading corporations and financial institutions in the world, providing the end-to-end integration of business processes such as airline ticket processing and cash-point processing. The Zurich laboratory is involved in more than 80 joint projects with universities across Europe and in more than 30 co-operation agreements with research institutes and industrial partners. Zurich focuses on communication devices and subsystems and in particular on technologies and software aimed at the market for mobile networks, as well as applied computer science in e-business and pervasive computing solutions with a strong IT security component such as smart card technology.

IBM is particularly well placed to assist in the consultation exercise concerning the patentability of computer-implemented inventions.

Harmonisation Should be Based on Current Practice of the European Patent Office

The consultation paper calls for input on the scope of harmonisation and in particular whether harmonisation should be based on the elements (i) to (vii) contained in the consultation paper or whether either a more restrictive or a more liberal approach should be adopted. For the reasons given below, **IBM urges that harmonisation be based on the current practice of the European Patent Office.**

We note that the elements (i) to (vii) are each supported by a respective explanatory commentary with a substantial number of references listed in Annexe II. The elements (i) to (vii) and their commentaries come close to stating the current practice of the European Patent Office but can be interpreted to mean something different. For the avoidance of doubt, we are able to support harmonisation based on the elements (i) to (vii) only to the extent that they accord with current European Patent Office practice. We find support for our view in element (vii) suggesting that the procedural and substantive legal rules of European patent laws would remain the essential basis for protection of computer-implemented inventions.

IBM's view is that the elements (i) to (vii) should be interpreted so that

- (a) In the commentary to element (i), if a patentable invention is implemented as a program which has a technical character, it is not "a computer program as such".
- (b) In element (ii), if a computer program implementing a patented invention is copied, then this will be an infringement of both copyright AND the patents that cover the program, irrespective of whether it is in source code, object code or any other form.
- (c) In element (iii), the terms "technical character" and "technical effect" must be used as a basis for determining patentable subject matter, it is not appropriate to artificially split the invention as claimed into technical and non-technical elements.
- (d) In element (iv), technical considerations should include the knowledge of not only hardware functions but also software engineering.
- (e) In element (vi), a computer-implemented invention may be claimed as a computer program if it provides the same technical effect as the programmed computer or the process.

IBM regards the present consultation exercise as a preliminary to drafting a proposed text of a harmonisation directive. If the elements (i) to (vii) or an adaptation of them were to be used as the text of this proposal we would wish to reserve further comment on the precise wording until the proposal itself is available. We welcome this Community initiative because we accept the arguments in the consultation paper that harmonisation of patent laws is necessary for the reasons advanced by the Commission.

We also note that over 20,000 patents have been granted for technical inventions implemented by a computer program within the present wording of the exclusions in Article 52 of the European Patent Convention. The field of application of such inventions spans an enormous range of products and processes in the fields of communications technology, information technology, broadcasting, industrial processes, traffic management, transport, domestic appliances and so on. IBM itself has a large investment in patents covering inventions implemented by computer programs commensurate with the research and development carried out by IBM both within Europe and globally.

IBM has been a strong and enthusiastic supporter of the European Patent Convention from its very first inception. IBM has contributed to the guidelines developed by the European Patent Office and has helped to make case law. We therefore make our response on the basis of substantial experience in the process of obtaining the grant of patents and the assessment of the grounds on which patentability should be judged within the scope of the European Patent Convention as it is presently interpreted. In our experience, from a practical point of view, the boundary between what is patentable and what is unpatentable, as indicated by the current case law and practice of the European Patent Office, can be judged with satisfactory precision. We acknowledge that there will always be difficult borderline cases but that is a comment that can equally be applied to other areas of patent law such as the level of invention required to support a patent or the interpretation of claim scope in relation to an alleged infringement.

More restrictive conditions would disincent software-based innovation in Europe

As a practical matter harmonisation of national patent laws must proceed in a manner consistent with the European Patent Convention (whether amended in respect of Article 52 or not) and with the international obligations imposed by the TRIPS Agreement. The options for harmonisation based on a more restrictive approach appear to us therefore to be entirely undesirable. A more restrictive approach could undermine confidence in patents already

applied for in good faith and granted by the European Patent Office and would discriminate with no good reason against inventions in the multifarious fields of technology to which we have already pointed above.

The patenting of technology provides a boost to innovation by reason of the confidence it engenders in making the investment in these areas. Patents provide a vehicle for the marketing and cross licensing of technology so as to drive forward the supply to the end user of products and services that best meet the needs of the marketplace. The licence exchanges that presently occur in the information technology industry rely on patents to make the exchange of technology possible. Patents provide a platform to promote the adoption of new technology. To take a more restrictive approach to patenting would consequently have a negative effect on innovation and on the supply of technology to the marketplace to the disadvantage of the European economy.

Technology that incorporates computer programs to make it cost effective and practicable is no different in essentials from automation technology that relies on a more traditional implementation such as a mechanical control. There is no difference in principle between using mechanically operated electrical switches to automate a machine to step through a sequence of operations as compared to programming a microprocessor to step through the same sequence of operations. On the basis of long established practice, the mechanically operated switch implementation would be patentable without question (if new and inventive). The technical effect produced by a computer program implementation of an invention may be indistinguishable from that produced by the mechanical equivalent. We have already mentioned the vast range of product areas that depend on computer programs for implementation. Computer programs find their way into the control and automation of almost all sophisticated products and processes because of the adaptability of microprocessors and the flexibility of computer programs. Patents abound in all areas of technology regardless of whether the technology is implemented using computer programs or not. Innovation in technology cannot be differentiated on the basis of whether computer programs form part of the invention. To adopt a more restrictive approach to patenting would prove a disincentive to innovation in almost all fields of technology to the detriment of research and development in Europe.

More liberal conditions would extend patentability beyond its useful bounds

IBM believes it would be inappropriate to introduce more liberal conditions coming closer to the practice in the United States particularly in relation to the patenting of business methods. As correctly stated in the consultation paper, in the US an invention needs no technological contribution; it must merely provide a useful, concrete and tangible result. We argue that to require no more than a "useful, concrete and tangible result" in the broad sense currently being applied in the USA invites the patenting of ideas that may have been visualised as desirable but have no foundation in terms of the research or development to turn them into practical reality. IBM spends very substantial sums to develop products for the marketplace and must ensure the supply of products that are reliable, cost effective and meet the needs of the customer. In common with the vast bulk of the information technology industry we seek to transfer technology into the hands of the customer without restriction, and accomplish this through contracts and licences with the other players in the industry.

The quid pro quo in the grant of patents is the disclosure of technology that rests on the research and development activity generating the inventions. The rationale that applies for protecting technological innovation by patents is therefore absent for those business methods where no such technical contribution is made. It is important that the level of protection granted by a patent is commensurate with the technical contribution the inventor has made to the art. The danger of opening the door to the unrestricted patenting of business methods is that patents may be granted that foreclose business ideas with no requirement to disclose the technology that makes them practicable. Thus, whilst IBM supports the patenting of computer program implemented inventions based on technical innovation, we see no benefit to commercial activity in Europe from the patenting of commerce itself.

The Member States are under no international obligation to broaden the basis of patenting business methods generally and under no obligation to depart from the well established norms of patenting derived from long practice. On the contrary, if it were desired to allow patenting of business methods then the consultation process should go much wider than the software industry itself. The reason is that such patents would affect all areas of commerce and bring all commercial concerns into potential conflict over the ownership and use of methods of doing business.

Harmonisation Will Produce a Positive Impact for Europe

It will be apparent from what has been said above that the best option is to base harmonisation on endorsement of the current practice of the European Patent Office. IBM

would expect issues such as the validity and infringement of patents in national Courts to be decided on the same basis that applies to granting patents in the European Patent Office. We would also expect national patent offices to apply common standards consistent with the European Patent Office.

The question whether the list of exceptions to patentability in Article 52 of the European Patent Convention is amended or not should not be allowed to deflect from the present practice of the European Patent Office. Claims to a computer program are presently allowable subject to the need to demonstrate a technical effect. That need for a technical effect should stay regardless of any amendment of Article 52.

Impact on innovation in software and underlying knowledge and techniques

IBM's recommended option would have a **positive impact on innovation in software and underlying knowledge and techniques because it would provide more certainty as to the standards and practices in granting and evaluating patents**. Since patents amount to commercial tools provided to encourage investment in and deployment of technology, the more certain that decision makers and venture capitalists can be of the investment decisions they have to make the better able they are to come to their decisions. Furthermore, the exclusion of patents to those business methods making no contribution to technology will leave the field clear for those making investments in technological innovation.

The nature of the software industry is such that innovation in software often involves a sequence of improvement steps to existing program products. Only those that are truly novel and inventive justify patent protection and this is typically a small proportion of all the improvement steps. The patents in question may cover individual approaches to providing improved results and are almost invariably overtaken with time as yet further improvements are made. It is important to realise that patents provide a return to the patent holder only in so far as they can be used to stimulate the adoption of the technology that is patented and whilst such technology still remains viable in competition with alternatives. One can expect an individual patent to cover technology that has a window of opportunity for adoption before it is overtaken by newer competing technology. The marketing of proprietary products by the patentee is one option to gain acceptance of a technology as it competes with other products. This option taken on its own gives the technology only a limited chance of acceptance. Licensing the technology increases its opportunity for acceptance and therefore its

commercial value. IBM has an open patent licensing policy under which we are prepared to licence our patents on a non-discriminatory world-wide basis. Moreover, IBM licences on a royalty-free basis the patents that are necessarily implemented by the use or sale of our open source contributions, a policy that has been endorsed by the Open Source Initiative.

Impact on the ability of SME's to enter the market for innovative software tools and services and the market for innovative applications of software

SME's by their very nature are dependent on a smaller base of investment in products and services than the longer established and larger players in the information technology industry. The decisions they make about entry into the market are therefore more critically dependent on the certainty with which they (or their backers, such as venture capitalists) can protect that investment so as to maintain a differentiation between their products and services and those of the competition. Copyright in software is a familiar concept to all in the software industry and is a major vehicle used to support the position of individual SME's against illicit copying and misuse of their products; however, it does not provide protection against the copying of ideas and concepts. We consider that the underlying concepts in the development work carried out by SME's need to be protected in a manner that provides broader scope than is provided by copyright. This protection would be provided by patents and would provide SME's with a means to secure a better chance to have their technology accepted in the face of competition.

SME's need more encouragement to obtain patents and that they would find it easier to apply for them if the law on patents was harmonised and capable of a clear unambiguous explanation regarding patentability. It would give SME's a platform on the basis of which to licence out their developments and put them in a better bargaining position to acquire cross-licences from others. We strongly urge harmonisation according to our recommended option so as to provide encouragement to SME's.

IBM's position will produce no impact on the creation and dissemination of free/open source software

IBM is a leading participant and strong supporter of open source software in Europe and elsewhere and encourages the development of software under public licences that

provide an orderly distribution of software for the general good. The supply of free or open source software is flourishing under the present patent system where technological contributions in the software field can be eligible for the grant of a patent, and IBM sees no reason why the harmonisation of patent law based on current European Patent Office practice should change that. The fact that some software is distributed with source code that is publicly available is however no reason to prevent other software being distributed without public access to the source code. Whether to make the source code available or not should be a matter of vendor choice. It may, as one example, depend on the need to provide expert maintenance of safety critical software by the software supplier.

The patenting of computer implemented inventions encourages the disclosure of the concepts underlying an invention because all patents are published with a description of the implementation of the invention. Where code is distributed in object code form, a patent may provide the only public disclosure of the technical concepts underlying the code. Such patents therefore promote a number of the aims of the free or open software community by making these disclosures. The argument whether patents would be a hindrance to the dissemination in Europe of free or open software appears to us to be very questionable given the success of free or open software to date, including in the US where the patent regime is more liberal than in Europe. The benefits of having patents to provide a stimulus to innovation far outweigh any potential (and so far as we know unsubstantiated) hindrance to free or open source software.

IBM recommends endorsing the present practice of the European Patent Office. This would involve no change in the scope of patent claims. The effect of harmonisation would be to provide greater uniformity and certainty in evaluating patent protection and not to bring into protection or remove from protection particular categories of free or open source software. The proponents of free or open source software might regard patents covering computer implemented inventions as generally undesirable for their purposes. However it would require very strong evidence indeed to suggest that progress to the benefit of the whole Community in the important area of software technology should be held back by concerns in this particular segment.

Granting of software patents will positively impact the position of the European software industry in global competition

IBM is a global player in the software industry and invests heavily in research and development in Europe as already noted above. IBM also invests heavily in the patent system but is currently faced with the position that patents held in the different countries in Europe are subject to evaluation according to different considerations. We are satisfied with and support the European Patent Office in regard to the practice that has been adopted in granting patents relating to computer implemented inventions. The impact of harmonisation according to our recommendation option would be to rationalise the European practice as a common standard capable of explanation to those who have to make decisions on investment in Europe. It is difficult to defend the fine distinctions between what is patentable and what is not patentable in the different countries of the Community and why there should be any differences in standards between the European Patent Office and the Courts of different jurisdictions. **A harmonised approach would help us and, we believe, others in the European software industry because it would help to remove the complication from this specialist subject.**

Positive impact on the general development of the Information Society

IBM is an strong supporter of e-commerce and the important initiatives underway to promote the development of the Information Society in Europe. At a European level IBM participates in the eEurope initiative and at country level IBM participates in a number of individual government e-commerce initiatives. As a major contributor to the digital technologies that underpin the Information Society, we regard the encouragement of investment in those technologies as a major factor in the evolution of the Information Society. Indeed the Information Society is the inevitable result of continued development of the technology that IBM has historically been concerned with.

When the Commission launched the eEurope initiative it said that policy needs to reflect the pace of change in technologies and markets and requires affirmative measures to support research and development in key areas. As a natural adjunct to that initiative, a clear harmonised legal framework has to be adopted to support the policy measures. The adoption of IBM's recommended option for harmonisation of patent law in relation to computer implemented inventions would self evidently contribute to that clear legal framework. The balance struck by the European Patent Office in its present practice is the right one in achieving the aims of promoting the Information Society. **IBM believes that to widen the field of patenting so as to encompass e-business methods that provide no technological**

contribution could lead to patents that would foreclose dissemination of clearly desirable ways to conduct commerce. Apart from the immense disruptive impact of such patents and the practical difficulties of evaluating and enforcing them, they would not be right for the Information Society as a matter of principle.

Conclusion

- Harmonisation should take the form of legislation consistent with the European Patent Convention (whether amended in respect of Article 52 or not) and with the international obligations imposed by the TRIPS Agreement.
- The options for harmonisation based on a more restrictive approach are entirely undesirable.
- While IBM supports the patentability of computer program implemented inventions, more liberal conditions coming closer to the practice in the United States particularly in relation to the patenting of business methods should be avoided. The innovation incentive rationale that applies for protecting technological innovation by patents is absent for business methods lacking technological innovation.
- Consultation on the patenting of business methods should be broadened to include all areas of commerce that may be affected.
- IBM recommends legislating for harmonisation in a form that amounts to endorsement of the current practice of the European Patent Office.

14 December 2000