PbT Consultants

Final Report by *PbT Consultants*

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THE RESULTS OF THE EUROPEAN COMMISSION CONSULTATION EXERCISE
ON
THE PATENTABILITY OF COMPUTER IMPLEMENTED INVENTIONS

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0. Executive Summary

Introduction

On 19 October 2000, the European Commission, DG Internal Market, launched a consultation on the subject, "The Patentability of computer-implemented inventions".

The aim of the consultation was to seek the views of interested parties, the public at large and Member States in order to help the European Commission formulate a policy that strikes the right balance between promoting innovation through the possibility of obtaining patents for computer implemented inventions and ensuring adequate competition in the market place.

DG Internal Market produced and made available on its web site a consultation paper that invited comments by 15 December 2000 on the preferred scope and economic impact of harmonisation in the area of computer implemented inventions. The paper contained a number of proposed "Key Elements" for a harmonised approach to the patentability of computer-implemented inventions in the European Community.

The Response

A total of 1447 responses were received, amounting to around 2500 pages of text.

The largest single element in the response was a "petition" organised by the Eurolinux Alliance who had requested responses to be sent to themselves for forwarding to the Commission. Almost 1200 such responses were forwarded along with the response from the Alliance itself. Eurolinux is an alliance of over 200 commercial software publishers and European non profit associations with the goal to promote and protect the use of Open Standards, Open Competition and Open Source Software such as Linux.

Responses were received from individuals and organisations in all EU and EEA member states apart from Liechtenstein , various CEEC countries, the US, Australia and South Africa.

The Scope of Harmonisation

The consultation paper asked the following questions:
- Should harmonisation take place on the basis of the elements contained in this document? Or:
- Should a more restrictive approach be adopted? Or, conversely:
- Should more liberal conditions coming closer to the practice in the United States of America prevail in the future?

Almost all of the responses fell into one of the following two distinct groups:

Restrictive Approach - Opposed to most software patents

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Members
Students, academics, engineers, start-up companies
Concerns
Threats to the open-source movement and SMEs, lack of patenting resource and expertise, fear of litigation, negative impact on standards for interoperability
Proposals
Severely restrict the patentability of software

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> Limit infringement liability for "open-source" software
> Reject all business method patents

> **Liberal Approach** - Apply traditional patentability criteria to computer-implemented inventions
> Members
> Lawyers, established industry players, government agencies,
> Concerns
> Protection of development investment, equality with the US, opening up of global markets
> Proposals
> Harmonise the application of European Patent Office practice
> Apply patentability criteria to software that are slightly more liberal than those proposed in the Commission consultation paper
> Take extreme care with patenting of business methods

It was clear that the group opposed to software patents (91%) numerically dominated the response. A large proportion of this group was explicitly from the "Open Source" movement including the Eurolinux "petition". 54% of responses that were sent directly to the Commission and were not from explicit "Open Source" respondents, supported software related patents.

If account is taken of the economic muscle and number of organisations represented by responses from industry and other associations it can be argued that there is an "economic" majority in favour of patents on computer-implemented inventions.

On the other hand, those opposed to software patents would claim that due to the size and fragility of their organisations, they require support. They would also claim that it is only the "open-source" movement, e.g. Linux, that can effectively take on the "Micro$oft"'s of this world.

Ultimately, the weighting of the two points of view is a political matter.

The Impact of Harmonisation

The consultation paper asked for comments on the impact of the respondents' preferred scope of harmonisation under the following headings:

Innovation in software and underlying knowledge and techniques

All but the most radical of respondents agreed that innovation was fostered by patents in other areas of technology. However, those opposed to software patents claimed that software technology was sufficiently different to justify a different approach. Both the nature of the technology itself, for example, the incremental nature of the development process and the existence of a supposedly unique business model, i.e. open-source, were cited as key differentiators of the technology.

Impact on SMEs

Opinions were divided on whether the impact of software related patents was negative or positive on SMEs. Little hard evidence was provided of business failures or patenting

triumphs, apart from Stac v Microsoft where an SME successfully sued Microsoft for infringement of a software patent.

The creation and dissemination of free/open source software

The open source movement clearly believe that software patents are a threat. Most others claimed that patents would have a neutral impact on open-source software with disadvantages balancing benefits. A few claimed that patents could be used to the overall advantage of the open source movement.

The position of the European software industry in global competition

Supporters of patents claimed that a level playing field compared to the US and a clear commitment to TRIPS would improve the competitiveness of the European software industry. Opponents of software patents claimed that a patent free regime in Europe would maintain the claimed dominance of European open source software.

General development of the information society

Patent supporters compared the Industrial Revolution, fuelled by hardware patents, with an information revolution, fuelled by software patents. Opponents claimed that the openness encouraged by a lack of software patents improved interoperability and communication of all kinds.

The Concerns of those worried by Software Patents

The Eurolinux Alliance response proposes strict limitations on patents involving software. Inventions involving software should only be granted patents when the technical elements relate to hardware other than general purpose computers and their peripherals. A large volume of supporting evidence was supplied as appendices to the response but there was little analysis of this documentation in their submission. Some of the documentation was inconclusive and some findings have been challenged by supporters of software patents.

Many of the individual responses in the Eurolinux "petition" had obviously been influenced by the contents of the e-mail from Eurolinux. Nevertheless, many individual responses give an insight onto the feelings of respondents. The responses also gave a useful characterization of the open-source constituency in terms of the backgrounds of the respondents.

The topics raised by those respondents who responded directly to the Commission gives a good summary of the concerns of all groups worried about software patents. These were, in order of frequency of mention:

- Patents Favour Large Organisations
- Patents are anti Open Source
- Philosophical Objections
- Software is Different
- High Risk of inadvertent infringement
- Copyright is adequate protection
- Patents are unnecessary
- Low Quality of Software Patents
- Increased Product Cost
- Abuse of Patents
- Threat to interoperability & standards

The Consensus Position of Supporters of software related Patents

Within the group that was broadly in favour of patenting computer-implemented inventions there was a degree of consensus on the preferred scope of harmonisation. This position is slightly more liberal than that expressed in the Commission consultation paper. The consensus position is:

- Strong support for the TRIPS agreement on a global scale
- Detail should be handled by jurisprudence rather than direction by, for example, a European Directive.
- Traditional patentability criteria should apply to software in the same way as other technologies. In particular there was a majority view that each of the criteria, in turn, should be tested against the characteristics of the invention as a whole
- The most likely criterion for rejection of a software patent application is lack of "technical effect and/or technical character". Failure of the tests for "industrial applicability" or "non-obviousness" may contribute.
- Practical guidance on software patentability is required including examples of what is, and is not, patentable.
- Copyright and patent protection should be independent forms of protection with the possibility of "double-banking".
- Patentability criteria should be strictly and consistently applied in order to limit the number of successful applications for inventions involving business methods.
- Patents are applicable to any form in which software is sold including downloads and all forms of data carrier.
- No changes in general patent law are required.
- A "one-stop" European patent application is required.
- Remove the "software as such" references in Article 52 of the European Patent Convention.

There were differences in view as to how urgent it is for the Commission to take action regarding harmonisation. It was agreed that the principal harmonisation requirement is to achieve common criteria for rejection/acceptance of patent applications, particularly those involving business methods. Some believed that a Directive was urgently required, others believed that cooperation between patent offices would achieve the same effect. Some believed that harmonisation was required on a global scale.

Other Proposals

Apart from the Eurolinux Alliance proposal mentioned above, a number of other proposals were made by respondents. Interesting elements included:

- Short protection time
- Use of compulsory licences
- Limited liability for open source distributors
- Sui Generis protection for software i.e. a special form of protection that would replace both copyright and patent protection

Actions proposed by Respondents

The following proposals for actions to be taken by the various players in the field of software related patents were made by respondents:

- The many anti-software patent respondents who are clearly unaware that there were already over 20000 software related patents in Europe should be informed about potential benefits of patents and the procedures for applications.

- The quality of software patent examination should be improved by training and exchanges of views between patent offices and the EPO.

- Patenting lead times and the ease of access to search databases should be improved.

- SMEs should be financially assisted with patent applications and searches.

- Opponents and supporters of software patents should have discussions and agree actions plans on a common approach to limit the patenting of business methods.

- The EU should not be afraid to put pressure on the US to change policies and practice where these are believed to be in conflict with European and global interests.

- Major players should resist the temptation to aggressively exploit opportunistic patents such as those covering hyperlinks.

The following suggestions for actions by the Commission were made by supporters of software related patents:

- Make a public announcement to the effect that it supports the current EPO practice regarding the granting of patents on computer-implemented inventions.
- Take a lead in calling for the removal of the "software per se" clause in the European Patent Convention.
- Further the cause of the "Single European Patent".

Many called for swift action by the Commission on drafting a Directive although others urged caution, suggesting that harmonisation could be achieved by other means or that further consultation was necessary.

Opponents of software patents wanted swift action on the part of the Commission but the radical nature of their proposals would require substantial negotiation if the Commission were minded to pursue a restrictive policy regarding software patents.

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1. Introduction

1.1. Aim of the consultation

On 19 October 2000, the European Commission, DG Internal Market, launched a consultation on the subject – "The Patentability of computer-implemented inventions".

The aim of the consultation was to seek the views of interested parties, the public at large and Member States in order to help the European Commission formulate a policy that strikes the right balance between promoting innovation through the possibility of obtaining patents for computer implemented inventions and ensuring adequate competition in the market place.

DG Internal Market produced and made available on its web site a consultation paper that invited comments on the preferred scope and economic impact of harmonisation in the area of computer implemented inventions. The paper contained a number of proposed "Key Elements" for a harmonised approach to the patentability of computer-implemented inventions in the European Community. The consultation paper was also formally notified to Member States. Respondents were asked to respond by 15 December 2000 and, in particular, to answer the following questions:

a) Scope of harmonisation

- Should harmonisation take place on the basis of the elements contained in this document? Or:
- Should a more restrictive approach be adopted? Or, conversely:
- Should more liberal conditions coming closer to the practice in the United States of America prevail in the future?

b) Impact of harmonisation

What would be the impact of the preferred option on:

- innovation in software and underlying knowledge and techniques;
- the ability of SMEs to enter the market of innovative software tools and services and the market of innovative applications of software;
- the creation and dissemination of free/open source software;
- the position of the European software industry in global competition; and
- the general development of the Information Society.

PbT Consultants won the contract to produce a report that analysed, structured and summarised the comments received.

1.2. Method of analysis

All documents received as a result of the consultation were examined and those elements considered by the consultants to be significant were noted in summary documents.

The summarised comments were grouped into the categories contained in this report.

Each category was analysed and summarised into the form contained in the following sections. Some use is made of edited versions of the texts, or translations of the texts, actually contained in the responses in order to give a sense of the "feel" of the responses.

The consultants hope that all views have been fairly reflected but it is inevitable that the process of reducing 2500 pages of input to 30 pages results in the omission or distortion of some views. Nonetheless, the consultants believe that this report reflects a very broad cross-section of views in terms of geographical distribution and the various interest groups.

In general, comments are not attributed to individual organisations since some were not willing to be identified. The report is structured, however, in a way that gives an indication of the type of respondent in each group of comments.

All analyses aim to give an overview of the responses that is not judgemental in terms of the consultation issues.

Any selection, editing or analysis involved in the production of this report is the sole responsibility of **PbT Consultants**.

A total of 1447 responses were received, amounting to around 2500 pages of text.

2. Responses to Questions posed in the consultation paper

2.1. a) Scope of harmonisation

2.1.1. Distribution of views

The first question posed in the consultation paper was

Should harmonisation take place on the basis of the elements contained in this document?
>   Or:
- Should a more restrictive approach be adopted? Or, conversely:
- Should more liberal conditions coming closer to the practice in the United States of America prevail in the future?

The distribution of the views of respondents based on responses sent directly to the Commission is described in the following table:

Point of view	Volume of Responses
No patents of any kind	A few responses in the Eurolinux "petition"
No software patents of any kind	A substantial proportion of responses from those opposed to software patents
No patents on general purpose computer software	A substantial proportion of responses from those opposed to software patents
Few patents of general purpose software	Very few responses
Mild restriction of the consultation paper position	Some responses
The consultation paper position	A substantial proportion of responses from

	supporters of software patents
Mildly more liberal than the consultation paper	The majority position of supporters of software patents
All software patentable	Some responses
All business methods patentable	Some responses

This demonstrates that the majority of responses fall into two distinct groups who hold substantially different views. One group is generally opposed to software patents, the other supports the principle of applying traditional patentability criteria to software related inventions. There is some spread of views within each group but there is a clear gap between them.

2.1.2. It is interesting to note that the first group always used the term "software patent" while the second group often used the term used in the consultation paper i.e. "computer implemented invention patent".

2.1.3. Numerical Analysis

The following analyses should be treated with caution since, in some cases the sample size is small and in all cases the samples are self-selecting.

The Eurolinux "petition" dominates the response numerically. While this component is a valuable source of data, it is statistically different in nature to responses sent directly to the Commission in response to the consultation paper. The size of the "petition" does not necessarily reflect the relative balance of views of the population as a whole. The "Patent Support" figure attempts to reflect the views of other than explicit "open source" inputs in order to get some idea of the balance between the two views in the population as a whole. This does not imply that the "petition" has been ignored in the overall analysis of the responses. The table only includes those responses where it was possible to determine the country of origin.

	Total Responses	Responses/ Million Population	Open Source Proportion	Patent Support (see definition below)
Denmark	70	14.0	93%	40%
Sweden	51	5.7	88%	67%
Finland	23	4.6	96%	100%
Germany	376	4.6	89%	65%
France	235	4.0	83%	28%
Switzerland	26	3.7	100%	-
Belgium	29	2.9	97%	0%
Netherlands	47	2.9	89%	60%
Austria	22	2.8	73%	67%
Luxembourg	1	2.5	100%	-
Ireland	9	2.3	67%	0%
Norway	9	2.3	78%	0%
Italy	115	2.2	89%	29%
UK	119	2.0	80%	46%
Spain	71	1.8	96%	67%

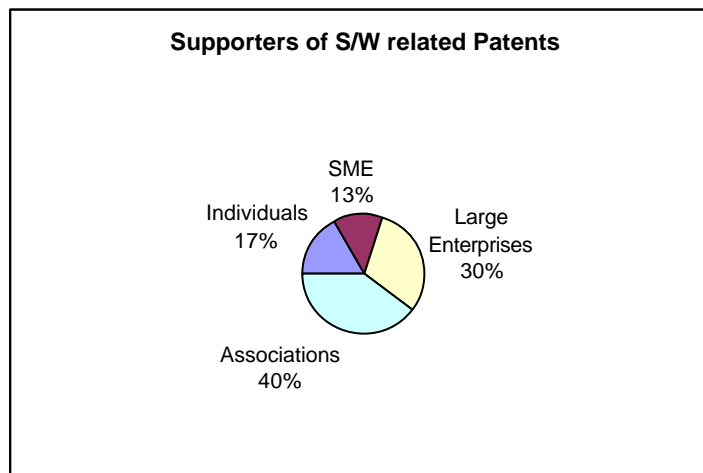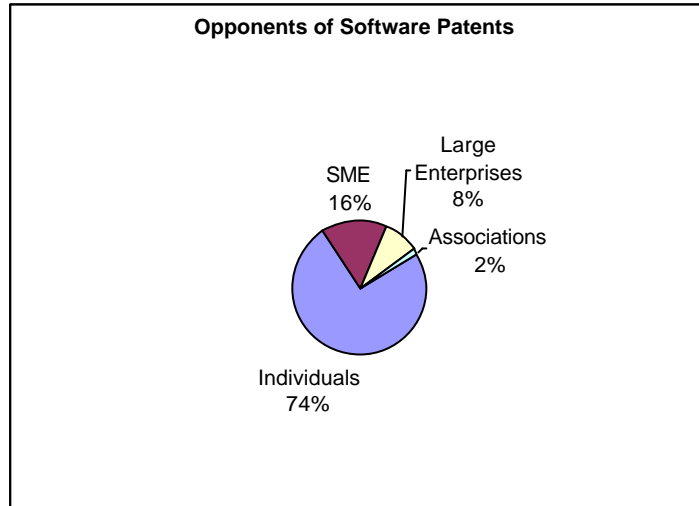|				
Portugal	15	1.5	87%	50%
Greece	3	0.4	100%	-
US	15	0.1	33%	50%
International	27	0	11%	100%

This table is ranked in order of "Responses per million population". This demonstrates an enthusiasm for the issue in the Nordic countries in the EU and a relative lack of interest in southern Europe.

The "Open Source proportion" is the proportion of responses that was overtly from "open source" lobbies, the vast majority was from the Eurolinux "petition" organised by the Eurolinux Alliance. It can be seen that this component dominates most country responses.

"Patent Support" is the proportion of responses sent directly to the European Commission that supported patents for computer implemented inventions and were not explicitly from "open source" groups. These figures should be treated with caution since the absolute numbers are very low in some cases but it is interesting to compare the "Patent Support" of "International" (Multi-national companies and associations), Germany and France. This suggests a significant difference in national attitudes.

2.1.4. Organisation Types

The following pie charts show the proportion of the different types of organisation in the two groups. Responses were excluded where it was not possible to identify the size of the organisation.

Opponents of Software Patents

SME
16%

Large
Enterprises
8%

Associations
2%

Individuals
74%

Supporters of S/W related Patents

SME
13%

Individuals
17%

Large
Enterprises
30%

Associations
40%

The differences between the two groups are stark. It is interesting, however, to note that the proportion of SMEs is similar in each case.

2.1.5. Discipline of Respondents

The following pie charts show the types of respondents where it was possible to determine their discipline.

Opponents of Software Patents

User
14.3%

IPR
Professional
1.3%

Software
Developer
56.2%

Governmental
0.2%

Student
13.0%

Academic
15.1%

Supporters of S/W related patents

Governmental
11%

IPR
Professional
44%

Student
1%

Academic
5%

User
1%

Software
Developer
38%
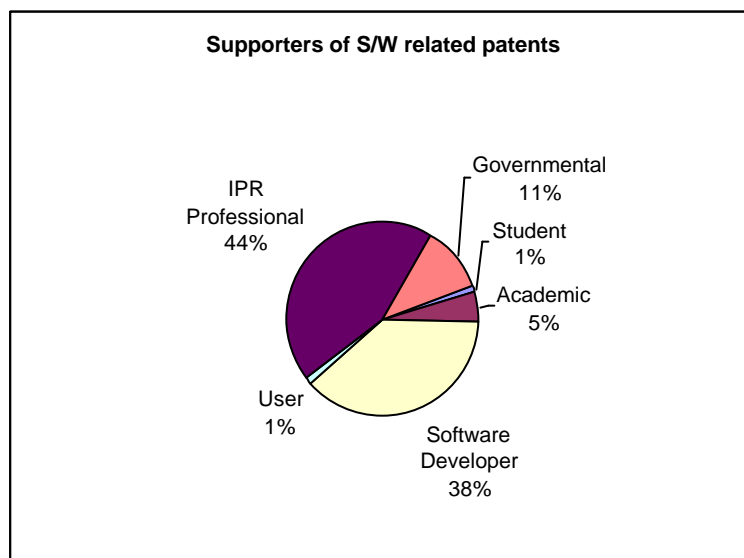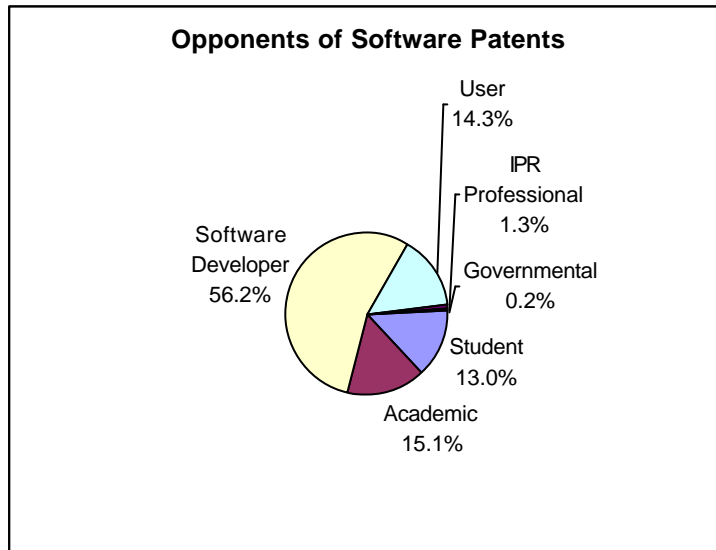
Again, the differences are very great between the two groups. It could be inferred from the proportion of students in the two profiles that the opponents are somewhat younger than supporters.

2.2. b) Impact of harmonisation

2.2.1. Introduction

The second question posed in the consultation paper was: "What would be the impact of the preferred option on:

- Innovation in software and underlying knowledge and techniques;
- The ability of SMEs to enter the market of innovative software tools and services and the market of innovative applications of software;
- The creation and dissemination of free/open source software;
- The position of the European software industry in global competition; and
- The general development of the Information Society.

Only 45 responses systematically addressed the question posed in the consultation paper on the impact of their preferred harmonisation. Most respondents expressed views on the impact of their various proposals in a less structured way. Most respondents also made claims regarding the impact of opposing proposals. These views are considered in sections 3 and 4. Only the comments directly addressing the questions are included in this section. Section 2.3.2 relates to the economic impact of harmonisation more or less in line with the proposals in the Commission consultation paper. Section 2.3.3 is the Eurolinux Alliance view on the impact of their harmonisation proposals. Their proposal aims to minimise software patenting. A summary of their proposed harmonisation is given in Section 3.1. None of the other respondents who were worried about software patents directly addressed the "impact of harmonisation" question in the consultation paper.

2.2.2. Impact of harmonisation based on the EC Proposals

Innovation in software and underlying knowledge and techniques

The success US based IT companies in the presence of software patents and the innovation in other fields that had been encouraged by patents were used to support the claim that software patents would help innovators. No specific examples were quoted of particular patents that demonstrated a clear link. The removal of uncertainty caused by harmonizing software patents was seen as fostering innovation as was the disclosure element of the patent process.

The ability of SMEs to enter the market of innovative software tools and services and the market of innovative applications of software

Few of the respondents in this group were SMEs involved in software development and were therefore not speaking from direct experience. Claimed benefits for SMEs were that patents provided collateral for start-ups and an opportunity for small companies to challenge big ones. Stac v Microsoft was cited as an example of an SME gaining substantial compensation by successfully challenging a patent infringement by a mega-corporation.

The creation and dissemination of free/open source software

Most comments suggested that software patents would not be a threat to open source software rather than being a direct benefit to this type of software. Many of the comments were counters to claims of negative effects made by the open source movement. These soothing comments are in marked contrast to the views expressed by open source exponents in the following sections.

The position of the European software industry in global competition

The principle argument used is that a level playing field will help Europe compete against the US. Reducing fragmentation in Europe with a harmonized patent system was also cited as a way of improving competitiveness. The clear commitment by the EU to TRIPS demonstrated by positive support to software patents would help global adoption of TRIPS.

The general development of the Information Society

Most arguments were based on the premise that the Information Society would gain as much as any other sector from software-related patents. Some comments drew a

comparison between the industrial revolution (based on mechanical inventions) and the Information Society (based on computer implemented inventions).

2.2.3. Impact of EuroLinux proposed harmonization

This section is quoted verbatim from the sections of the text submitted by the Eurolinux alliance that addressed the "Impact" questions in the Commission consultation paper. In the interests of brevity, some text has been abridged. All views expressed in this section are those of the Eurolinx Alliance.

Innovation in software

"On the one hand, the EuroLinux restrictive harmonization approach does not prevent from getting a patent on traditional inventions which include a computer programme, for example in the case of chemical industry or mechanical industry. On the other hand it guarantees to any author of an original programme meant to be used on a generic multimedia computer the right to publish his or her original work. The EuroLinux harmonization approach protects software authors and publishers from patent disputes. Because innovation in the software economy requires the freedom to combine, within an original work, a few innovative ideas together with many ideas imitated from existing programmes, the EuroLinux harmonization approach provides a higher level of innovation than any approach based on 20 years long software patents as is the case in the United States. EuroLinux has provided the Commission with a collection of research articles related to the economy of software innovation to sustain its position.

Ability of SMEs to enter the market

Two categories of SMEs should be distinguished:

1. SMEs which sell software licenses or services
2. SMEs which sell themselves

In the first case, the target market is the real world software market (license and service). The EuroLinux harmonization approach guarantees that SMEs in this market will not be blocked by juridical hurdles, as it is the case with SMEs in the United States where the risk of patent dispute creates a very unsatisfactory economic environment.

In the second case, the target market is the financial market. The EuroLinux approach does not prevent software publishers from entering this market as long as they can clearly exhibit intangible assets (ex. original code, trademarks, databases, employment contracts, know-how). However, the EuroLinux harmonization approach may cause difficulties for software companies that do not publish software and do not make profits and try to enter financial markets. As a result, the EuroLinux harmonization approach requires companies that try to enter financial markets to prove their viability in the real world market first, which is probably desirable if one considers the recent evolution of venture capital and the Internet this year.

Creation and dissemination of any software

The EuroLinux harmonization approach guarantees that any author of original software is free to publish his or her original work. Same stands for any service company which

provides commercial service based on proprietary or open source / free software, including in the fast growing embedded market. As a consequence, the dissemination of proprietary or open source / free software as well as the commercial activities based on the use of proprietary or free / open source software are protected.

Creation and dissemination of free / open source software. Same answer as for any software. As mentioned above, there is little relation between software patents and free / open source software. The opposition between software patents and free / open source software was mainly invented by some patent experts in Europe as a propaganda against EuroLinux. The European Commission should rather take into account:

1.   the impact of software patents on the publication of source code (whatever the copyright license on this source code). In the US, it is safer for a company to keep source code secret rather than disclosing it in order to prevent software patent disputes. Patents in the software economy actually lead to more industrial secrets.

2.   the impact of software patents on the competitiveness of SMEs. This is the main issue to tackle according to EuroLinux. The EuroLinux Alliance has no doubt that companies with a significant patent portfolio, such as IBM, Microsoft or Sun, will be able to disseminate their software, be it free or proprietary. However, the EuroLinux alliance is concerned that independent software publishers, such as most companies supporting EuroLinux, may not be able to disseminate their software if software patents were legalised in Europe.

Position of the European industry in global competition

The European industry will benefit from the EuroLinux harmonization approach in the global approach. Three cases should be considered:

1.   Traditional industry : the approach described above allows to patent traditional inventions, including the ones which are based on computer programmes. It has no effect on the traditional industry except that this industry is guaranteed to be free from potential threats posed by the monopolisation of software and organisational methods.

2.   Telecommunication industry : European leaders (Alcatel, Nokia, Ericsson, Siemens, etc.) are big and strong enough to file patents in the United States and use patents as a strategic tool in the US market. Therefore, the EuroLinux harmonization approach has no effect on the telecommunication industry. Moreover, it protects European consumers from potential anti-competitive and anti-innovative strategies in the PABX market and could stimulate innovation in the European telecommunication market since, like in the desktop market, software patents tend to slow down innovation rather than speed it up. As a consequence, there is no economic need for the European Union to allow those companies to use software patents in the European market.

3.   Software publishing economy : State/EC subsidised European blue chips (ex. Bull, Olivetti) mostly act as service companies which do not produce much software innovation and resell a lot of US software. Software innovation in Europe comes from small & medium software publishers, which would benefit from a market in which the "freedom to publish" is guaranteed, as opposed to the US market where publishing original software means taking juridical risks of patent infringement dispute. As a

consequence, the EuroLinux approach will make the European software market much more competitive and innovative than its US counterpart.

EuroLinux has provided the DGIM with a collection of research articles related to the economy of software innovation to sustain its position.

<u>General development of the information society</u>

EuroLinux believes that the information society develops faster and better whenever hurdles are removed and competition stimulated. Comparing proprietary models such as Prestel in the UK, Btx/Datex in Germany and the Minitel in France with open models such as the Internet clearly demonstrates the economic efficiency of open models. The EuroLinux Alliance believes that the information society should therefore not be patented because patents tend to stimulate financial concentrations and act as protectionist barriers. The EuroLinux approach guarantees that the information society may not be patented and in particular that intellectual methods may not be patented even for those that are based on the use of computer programmes."

2.3. Specific comments on the "Possible key elements"

Only 30 respondents systematically addressed the "Possible key elements" proposed in the consultation paper. Most of these respondents were multinational companies, associations of IPR Professionals or trade associations. The remaining respondents addressed the scope of harmonisation in much more general terms. No respondent who was opposed to software patents commented on the key elements specifically.

Some general comments were made regarding the Key Elements. These included the need for the Commission to publish detailed practical guidelines on the implementation of the seven principles and the need for the Commission to encourage the European Patent Office and Member States to put in place adequate staffing, resources and training to ensure proper and consistent execution of the principles. One respondent suggested that much more discussion was required before the incorporation of such principles in a Directive. Another stated that the principles added no value since they were a restatement of the TRIPS Agreement.

The headings in the following sections are followed by the explanatory text from the Commission consultation document.

2.3.1. i. The principle

Patents shall be granted for any inventions in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application. In that context, a computer-implemented invention is considered to belong to a field of technology.

Almost all respondents who commented on this Key Element favoured close alignment with Article 27(1) of TRIPS and most considered that the Key Element reflected this well.

The only significant difference in views related to testing the technological nature of a proposed invention.

<u>View 1</u> (the proposal contained in the consultation paper)

- All computer-implemented inventions have a technical character and therefore belong to a field of technology, per se.
- An inventive step must make a technical contribution to the state of the art. (Key Element iii) in the consultation paper)

<u>View 2</u>

- To belong to a field of technology, proposed inventions must have a technical effect or be of a technical character
- An inventive step can be based solely on non-technical aspects of the claim (but can, of course, be based on technical aspects alone or a mix both aspects)

Both views agreed that tests for every patentability criteria must be passed in order for a patent to be granted.

There was majority support for View 2. Supporters claimed that this better reflects the practice in other fields of technology.

Some respondents suggested that the terms "fields of technology" and "industrial application" should be defined in a way that makes clear the status of software-implemented and business method claims.

Some respondents suggested that the term "computer-implemented invention" should be replaced by "computer or software implemented invention".

A number of respondents suggested that adoption of this Key Element would require the removal of the EPC exclusion of software "as such".

Two respondents suggested that the "Comments" section of the consultation paper introduced undefined terms and suggested that these should be removed.

2.3.2. ii. The complementary nature of patent and copyright protection

Patent protection for a computer-implemented invention does not extend to the expression of a computer program based on that invention, in source code or object code or in any other form.

Most respondents believed that it was important that both copyright and patent protection coexist and that there should be no implication of mutual exclusion.

The desired relationship between copyright and patent was demonstrated by the following quotation from one respondent:

"If a patent is granted based on an invention embodied in a computer program, then if the program is copied, the acts of reproduction, installation and use of the resultant copy will infringe both the copyright in the original program and the patent. On the other hand, if the expression of the program is not copied, and instead an independent program is devised which falls within the claims of the patent, then there will be the infringement of the patent, but not of the copyright".

2.3.3. iii. The requirement of a non-obvious technical contribution

A computer-implemented invention, to involve an inventive step, must make a technical contribution to the state of the art which, having regard to the state of the art, is not obvious to a person skilled in the art.

A number of respondents suggested that Key Elements iii), iv) and v) should be combined since they are closely linked.

The view of 9 respondents was that the test for the existence of an inventive step should take into account all aspects of the invention, not just the technical aspects i.e. "View 2" as described in section 2.3.1, above. 3 respondents supported "View 1".

2 respondents believed that Key Elements iii), iv) & v) were attempts to codify the jurisprudence of the EPO. They would prefer a simple statement of the principles and let the courts interpret these principles.

1 respondent urged the Commission to issue guidance on what "technical contribution" means and how it relates to inventive step.

2.3.4. iv. The "technical considerations" criterion

A technical contribution may be implied, for instance, by the need for technical considerations to arrive at the computer implemented invention as claimed. The claimed invention must relate to the features resulting from those technical considerations.

Most respondents agreed with this element in principle but a number of respondents expressed the view that, as this criterion is one of many valid criteria, case law should be allowed to develop on this issue without being hampered by provisions cast in stone.

A number of respondents pointed out that "technical considerations" included software-engineering considerations.

2.3.5. v. The assessment of features – consequences for business methods

In determining the technical contribution, the invention must be assessed as a whole. It may consist of a mix of technical and non-technical features but in determining the technical contribution only the technical features are taken into account. Where the contribution lies merely in non-technical features, the invention will not be considered as involving an inventive step.

A number of respondents believed that business methods should be excluded on the basis of other patentability criteria. Suggestions for excluding business methods included: failure to be in a "field of technology", incapability of "industrial applicability" or strict application of "non-obviousness".

One respondent encouraged the Commission to make a strong statement that recognises the critical importance of maintaining a very high quality examination process in the European Patent Office and national patent offices for patent applications involving business methods.

Some respondents expressed the view that much more comprehensive investigation and analysis was required before any extension of patentability to business methods takes place.

One respondent noted that "the US Patent Office, as part of the tri-lateral initiative with the Japanese Patent Office and the European Patent Office, agreed in June of this year (2000) that "a technical aspect is necessary for a computer-implemented business method to be eligible for patenting, and to merely automate a known human transaction process using well known automation techniques is not patentable", yet the practice of the US Patent Office would not seem to accord with this position."

2.3.6. vi. The possible claims

A computer-implemented invention may be claimed as a product, namely as the programmed computer, or as a process, namely as the process carried out by the programmed computer.

The majority of respondents believed that patents should be applicable to any form in which the software is sold, including downloads and software on any type of data carrier since infringement claims should be directed at distributors rather than users of software.

Some suggested that it should be made clear that patents can be applicable to source code in order to give comfort to the "open source" movement.

All respondents believed that processes carried out by a programmed computer can be patented.

2.3.7. vii. General patent law as continuous essential basis for protection

Beyond that provided for in any Directive, the procedural and substantive legal rules of European patent laws would remain the essential basis for the legal protection of computer-implemented inventions.

No respondents in this group suggested that there should be any adaptation of general patent law to accommodate computer-implemented inventions. A number of respondents, however, thought it would be useful to reiterate or clarify certain aspects of current law and practice. Issues included the following:

- A patent can be nullified by a legal judgement that finds that the invention is insufficiently clear for a person skilled in the art to implement it.
- Experimental use of a patent is permitted.
- A programme that has been patented can be made the object of a voluntary licence by the patentee, if refused, this can be made obligatory.

One respondent suggested that patent applicants should be encouraged to describe applications in terms understood by their peers e.g. the UML functional description language.

One respondent suggested that harmonised guidance on the procedures and form of claims would be useful for applicants, examiners and potential users of granted patents.

3. Comments from groups concerned about software patenting

3.1. Introduction

Responses that were generally opposed to software patents fell into the following groups:

- The Eurolinux Alliance "official" response, described in Section 3.2

- Responses from 6 organisations, active in the "Open Source" movement, summarised in Section 3.3

- A "petition" organised by the Eurolinux Alliance. A summary of the 1161 valid responses forwarded by the Eurolinux Alliance is given in section 3.4

- Other responses opposed to software patents sent directly to the European Commission. These are summarised in section 3.5.

3.2. The EuroLinux official response

3.2.1. Introduction

The Eurolinux Alliance sent a substantial body of documentation to the EC in response to the EC's consultation process. This consisted of an "official response" and a number of supporting reference documents.

The EuroLinux Alliance is an alliance of over 200 commercial software publishers and European non profit associations with the goal to promote and protect the use of Open Standards, Open Competition and Open Source Software such as Linux.

3.2.2. Eurolinux Concerns

This section is a verbatim extract of the Eurolinux Alliance submission.

"Software patents allow a person to steal the original work of a programmer by claiming it is a patent infringement and forcing him or her to stop publishing his or her original work.

Programmers feel that it is very unfair to let someone who did not invest much R&D in software technology get a patent.

They consider that copyright is the appropriate means to protect software since copyright covers the expression of software.

Many European software publishers, including in the Linux community, are afraid to publicly express their opposition to software patents because of their commercial ties with companies such as IBM, Cisco or Microsoft that are aggressively supporting software patents.

Independent observers have found it very impressive that 100+ companies provided EuroLinux with a public statement against software patents.

It is widely admitted that Konqueror, iCab and Opera, three software products mainly designed in Europe, are the most relevant alternatives to Microsoft dominance in the browser market. Two are shareware and one is open source / free software.

EuroLinux considers that European blue chips have largely failed in providing a relevant commercial alternative to the dominance of US software players. On the other hand, companies such as TCX, Opera, Mandrake, SuSE, etc., are successfully challenging the US software dominance on strategic markets and helping the above European blue chips to gain back their software independence. Those companies would definitely be harmed by the introduction of software patents in Europe.

EuroLinux considers that it would be unwise and unfair to let companies such as Hitachi, IBM, Microsoft or Sun use their software patent portfolio in Europe either to assimilate or to eliminate what EuroLinux considers to be Europe's jewels in the Information Industry.

Scope of Harmonization

The EuroLinux Alliance considers that the elements contained in the EC consultation document :

1. fail to provide an economic justification to the extension of the patent system,

2. fail to provide a clear definition for the terms "invention", "technicity" and technique",

3. fail to take into consideration the requirement for "industrial application" which is a the core of patent Law,

4. fail to take into consideration the interpretation of the European Patent Convention by national courts and their decisions to cancel software patents granted by the EPO,

5. fail to provide a distinction between "innovative methods to process digital information" and "innovative methods to use the forces of nature",

6. fail to take into consideration the specific nature of software, and in particular the fact that innovative software can be the result of an automatic digital computation which is not the case for traditional inventions,

7. fail to take into consideration legal constraints posed by the European Union treaties in the fields of competition, innovation, cultural diversity, consumer protection, liberties, public security and software interoperability."

3.2.3. Eurolinux Proposals

This section is a verbatim extract of the Eurolinux Alliance submission.

"EuroLinux Alliance proposes that

1. publishing original computer software on a physical media or on the Internet should never be considered as a patent infringement,

2. using computer software on a generic multimedia computer should never be considered as a patent infringement,

3. the interoperability principle introduced in a 1991 directive on software protection should prevail over any other form of industrial property as is now the case,

4. "technical" should be defined as "pertaining to the use of natural forces to directly cause a transformation of matter without intervening operations of mental deliberation"

5. "invention" should be defined as "embodiment of a new technical teaching, i.e. a teaching on how to use natural forces in a new way to directly cause a non-obvious transformation of matter serving an industrial application", which is the same as "a technical solution of a technical problem", the problem consisting in "how to cause a transformation of matter" and the solution consisting in "a teaching on how to use natural forces to solve the problem",

6. "industrial application" should be defined as "application for the production of material goods",

7. "inventivity" or "inventive step" should be understood as the creative experimental activity which leads to a non-obvious technical solution to a technical problem,

8. innovations based on computer programmes may thus be patented if and only if they are not equivalent to the combination of an "innovative method to process digital information", an "existing technique to digitize natural forces" and an "existing digital model of matter".

The underlying principle to the EuroLinux proposed harmonization is that only empirical activity can produce inventive results in the sense that such results are not predictable by means of pure mental activities such as computation. This strict definition of inventivity makes the patent system less prone to produce trivial patents in many fields.

Distinguishing between a technical solution and a software solution lies in the requirement for direct causality, also expressed in point 8.

<u>Proposed interpretation of article 52 of the European Patent Convention</u>

New rules created by some organs of patent jurisdiction could lead to undesired social and economic effects. In order to prevent such effects, we propose the following clarification:

1. The term "programs for computers", refers to the program at all design levels from the conceptual plan to an instruction executable by a human or by a processor. A computer program is a plan and an instruction, a literary work and a virtual machine, an interface and an implementation, a problem and a solution, a process and a product, all in one.

2. A technical invention described by means of a computer program can, at a conceptual level, be distinguished from the program as such. Likewise a "method for the production of chessboards" can be distinguished from the chess game as such. The particle "as such" in Art 52 (3) EPC is to be understood only from its syntactic function in the above sentences: it serves to differentiate between two mutually independent categories by which a potentially patentable object could be described. A "computer program with a further technical effect" belongs to the category of computer programs and can therefore not be distinguished from a "computer program as such".

3. Computer Programs are not inventions in the sense of European patent law. Chemical processes, tyre braking processes and other technical processes controlled by computer programs can be inventions, as far as they are distinguishable from the computer program not only at a conceptual but also at a practical level. I.e. the solution of the problem must lie in a technical realm beyond the realm of programming, and the exclusion rights derived there from must be directed to material objects outside of the program, such as e.g. chemicals or automobile engines. The same applies to all categories of non-patentable object listed in Art 52 (2) EPC.

4. A "technical" process is one that uses natural forces to directly cause a transformation of matter. Objects that contain both technical and non-technical features are inventions only if the part that is claimed to be new and inventive, i.e. the core of the invention, lies in the technical realm. A technical process controlled by a computer program on known hardware is an invention if and only if it uses natural forces in a new way to directly cause a success in production of material goods that could not have been predicted by mere computation based on prior knowledge."

<u>Appendices to the Eurolinux response</u>

The Eurolinux Response was supported by the following Appendices.

13 research articles on economics, notably, "Sequential innovation, patents and imitation". James Bessen &Eric Maskin. This paper is much quoted by both opponents and supporters of software patents, 3 general reports, 14 "Testimonies and comments, 8 law articles, 7 patent examination articles, 3 software patent examples, 1 international policy document, 7 press articles, 8 Eurolinux press releases.

Many of these Appendices, along with all the other information submitted by Eurolinux, including the "petition", is available on their website.

3.3. Other "Open Source" Groups

3.3.1. Concerns of other "Open Source" Groups

This section and the one that follows contains the views of 6 groups that support the "Open Source" movement in the following countries: Denmark, Sweden, and Italy. One group represents users and developers of an international Open Source product. In addition to these groups, 38, almost identical responses were sent from Italy, almost certainly inspired by an Italian Open source association.

These respondents reiterated most of the concerns expressed in sections 3.4 and 3.5. The following additional concerns were identified:

-   There is no documentary evidence to suggest that software patents would promote innovation.
-   It is a serious problem that the patent authorities are financed from revenue, with the result that they have an interest in approving a large number of patent applications.
-   It seems more sensible to promote innovation in important resource-hungry areas through special support arrangements for public and private research than to try and bring about major breakthroughs etc. in a way that will at the same time inhibit the majority of innovative work.
-   Patents do not protect a product, as it's impossible to write any big complicated piece of code without conflicting with a patent. Even if you have a patent, someone else can very easily ensure that you will never be able to deliver the product to the end costumer.

3.3.2. Proposals from other "Open Source" Groups

The following proposals were made by the groups identified in the previous section:

- Software patents should be restricted by excluding general purpose algorithms, computer programs as such, and methods for utilising inventions for business purposes if the technological content is not otherwise patentable.
- The part of the field of patents currently dealt with by the EPO should be transferred to the European Commission. This will improve transparency.
- The administrative procedures that have made trivial software patents possible should be reviewed in depth.
- The current legislation be should retained, but in its intended form. We do see that software that replaces physical items that were patentable, should still be patentable. But software "as such" should not be patentable. Software should only be patentable if the software does something physical, which is not related to a normal computer, including all normal computer peripherals.
- A software patent should only apply to the physical phenomenon it was granted for, if the algorithm is useful in other contexts, this is not protected by the patent.

3.4. The Eurolinux "petition"

3.4.1. Background

By means of widespread sending of an e-mail, the Eurolinux Alliance requested e-mails to be sent to them on the subject "Let the EC know what you think about software patents". Eurolinx indicated that the e-mails would be published on their web site and that all e-mails would be forwarded to the EC in addition to the Eurolinux response to the consultation process.

Guidance was given by the Eurolinux Alliance on the form and content of the response. Extracts from this guidance that were frequently found in the responses or appeared to influence the responses included the following:

"For quite obvious reasons, many patent attorneys and IP lawyers who earn money through the patent system are currently lobbying the European Commission in favour of a broad extension of the patent system to software, business methods, intellectual methods, etc. Unless you express your own opinion, only their opinion will be taken into account in the decision process, whatever the consequences on your business, whatever the consequences on innovation."

"There is currently a consensus among economists on the fact that software patents tend to stifle innovation and harm small and medium enterprises because they create tremendous juridical uncertainty which only benefits to patent attorneys and lawyers. There is also a consensus among patent attorneys on the fact that patents on business methods are just a kind of software patents and that it is impossible to ban business method patents once software patents become legal."

"…advice for your email to reach maximal impact within the European Commission:

1- NO POLITICS - Do not include in your emails any political analysis. Otherwise, certain civil servants at the European Commission will pretend that you are politically biased and claim that your arguments are irrelevant.
2- FREE MARKET RHETORICS - Use rhetoric based on free market, competition, innovation, entrepreneurship, SMEs and property, just as if you were the chief of the

federation of enterprises in your country. …. Arguments based on epistemology, ethics or history are acceptable but have in general no positive impact on the European Commission because only few people will understand them.

3- DAVOS COMPATIBLE - Imagine that you are introducing your point of view at the Davos Economic Forum in front of CEOs who will only listen to you if your arguments mean more profits to them. Incidentally, many Commissioners at the European Commission used to be members of the steering committee of the Davos Economic Forum.

4- CONSENSUS AMONG ECONOMISTS - Always mention that there is a consensus among economists on the fact that software patents harm innovation."

"If you need inspiration to write your own statement, you may also access our statements database where 100 European companies have already published position statements:"

3.4.2. The response

Once duplicate and irrelevant responses were removed, there was a total of 1161 responses. Most of irrelevant responses were of the form "Do not send me spam (unsolicited e-mails)".

Most responses came from the EU or EEA, 15 came from CEEC countries, 15 from the US and one each from Australia and South Africa.

3.4.3. Views expressed

8 of the responses accepted the principle of software patents. Of these, 1 was entitled "Yes to Software Patents" but there was no message content. The others supported the concept of software patents provided that they are strictly "novel, non-obvious, useful and have a technical effect". 3 of these respondents favoured shortening the period of protection to 2-5 years.

The remaining responses (1153) were more or less hostile to software patents. A significant number of responses were expressed in terms that suggested that they believed that there were not yet any software patents in Europe although, in fact, over 20000 software related patents have been granted in Europe. Many were expressed emotionally with the occasional use of words containing "*****". Many, however, were well considered analyses as seen from the particular perspective of the respondent.

3.4.4. Concerns

Elements in quotation marks below are, more or less, verbatim in order to give a "feel" to the comments.

Threats to "Open Source" Software

Most responses were concerned about the potentially negative impact on the "Open Source" model for software development and distribution.

"I own, together with a partner, a small company which manufacturers power supplies for computers. And the moment we are thinking of opening up the source code for our own business management software to help other companies to do their business. If software patents were to be introduced we would have to rethink this completely!"

"If patents of applications become a reality, Linuxworld will die."

<u>Philosophical Objections</u>

Many respondents expressed objection to software patents on principle.

"I am a 14 yr old school-kid living in Britain, and, as a future grown up, I plead (imagine me getting down on my hands + knees for this, hands clasped together) that patents on software should not be allowed to go any further. As a child of the GNU generation, I love feeling part of a global community helping each other to use their computers in a way that helps them."

"It is like being in a race where the runners are not only permitted to trip each other but actually issued with tools to facilitate it."

(From a CEEC respondent) "I had to live in state of absurdity (under a Communist government) for more than half of my life. I am sensitive to absurd laws and rules. I don't want live in society, where anything can be covered with patents and copyrights. I feel a touch of Orwell's Big Brother in it."

<u>Lack of need for patents</u>

Many respondents expressed the view that copyright protection was quite adequate for the protection of software intellectual property.

"There is no requirement for software patents. I do not see any companies going bankrupt because they are unable to patent their software, in fact I see the opposite."

<u>Cost of patents</u>

"I hold several software/algorithm patents in Europe, with several more applications pending worldwide. I am an entrepreneur who has grown my Finnish company from zero to 170 people in four years. I find myself forced to invest millions in patents, primarily for defensive purposes. This has a highly detrimental net effect."

"My own company recently investigated the possibility of patenting some of our inventions and came to the conclusion that the whole process would be too costly and time consuming and that we would not have the financial resources to take to court any large company who chose to infringe on our patent."

<u>Examples of "abuse" of software patents</u>

Many respondents quoted examples as evidence of the potential for "abuse" of the software patent system. "Abuse" fell into two categories:

- Waiting until a patent has been widely adopted as a de facto standard before filing an infringement claim.
- Widespread filing of "trivial" patents in the hope that one will "hit gold"

Popular examples included the LZW algorithm, in particular as used in the GIF image format, Amazon "1 click shopping", the "exclusive OR video display" function and BT's claim to patent the hyperlink.

Software is different

Many correspondents pointed out that software is different from other areas of technology in terms of the relative proportions of research, development, production and distribution costs. They also pointed out that software development is very incremental and typically any novelty is based on a mixture or original and derived elements rather than a single inventive step.

  "The development of software is by nature a creative process, the product of which embodies another process in the form of a procedure, algorithm or method. Copyright has proven sufficient to protect this process."

Cost of checking for patent violations

Many respondents were concerned about the cost and difficulty of checking for potential patent violations. Lack of legal training and inadequacies in patent databases were cited as causes of difficulty.

 "Forgive any mistakes I have made regarding the precise nature of the proposed laws - I'm a software developer, not a patent lawyer. I would strongly prefer it if I could stay that way."

Patents make ideas property

Many respondents, particularly from academic institutions were concerned that software patents restrict the free circulation of ideas.

"In my own field of expertise (fisheries biology), software patents are a significant drawback for the advancement of our knowledge which is highly critical for the control and management of renewable resources. Please, do not allow software patents in Europe."

Interoperability

Interoperability between hardware and software and cross-network interoperability of software were cited as key elements in the success of the Internet. Software patents were seen as inhibiting the necessary openness and sharing of information. Software patents are also seen as destabilising the standardisation processes.

Fear of Lawsuits

Many respondents were concerned about the risk of lawsuits. Some small companies feared that they did not possess either the resources or expertise to defend themselves legally.

"I am the proprietor of a small software business that sells software over the Internet. I rely on Copyright Law to protect my intellectual property rights. I do not want Patent protection. If software patents are introduced I am at risk of prima facie complaints brought against my company by large organisations. I am so concerned about my position that I have published a "Patent Spoiler" on the company Web site - that is, a declaration of all that might be deemed innovative in my software."

Software Quality

Some respondents pointed out that software patents encourage object code products as opposed to source code products. They claimed that source code products tend to be "better" products since users and others are free to develop "bug-fixes" and other

improvements while the author of an object code product is the only person who can correct errors in his code or otherwise develop the product.

Vulnerability of Open Source software to infringement claims

A number of respondents pointed out that source code is particularly vulnerable to infringement claims since it is easy for anyone versed in the art to analyse source code for patent infringement.

A step towards patenting of business methods

Many respondents believed that software patents would inevitably lead to widespread, and undesirable patenting of business methods.

US Experience

A number of Americans working in Europe expressed views consistent with the following quotation.

"I am an American working with a European Company employed by their American branch. I develop software, but not in the US. In the US I have abandoned the development of software because the patents of intellectual ideas mean I cannot innovate without hiring a lawyer, who is also a programmer, to examine my code and assure me I am not violating some patent."

European Competitiveness

A number of respondents claimed that Europe was particularly strong in the "Open Source" movement and that the US would therefore benefit from any threat to this movement.

"I consider software patents to be harmful. The open source movement is an area where Europe is relatively strong, compared to commercial software (US-dominated)."

Venture Capital

Supporters of computer implemented invention patents claim that patents are a key element in securing capital for software start-ups. One respondent, at least, disagreed:

"I work as the Chief Technical Officer of a Venture Capital/business acceleration company working exclusively in the high tech sector. Patents on software would in no way help, and would almost certainly impede, the development of new businesses."

3.4.5. Proposals

For most of the respondents the proposal could be summarised as "Ban software patents" A few respondents, however, offered suggestions on the basis of "If (In the unfortunate event) there were to be software patents, then…..).

The following proposals were made:

- If a patent is given and then found to be illegal or if prior art is demonstrated, then they (the patent offices) should be liable and pay damages for people who paid for the patent, for the license or for the court.

- The following software patent criteria should be applied:

- A software patent should never be usable as legal leverage to prevent compatibility, on application programming interface, protocol or file format levels.
- There should be a cheap and easy way to instigate the revoking of frivolous patents, preferably outside the court system.
- There should be safeguards against software patents that are merely a competent implementation of an existing concept, rather than a truly innovative idea.
- Patent claims that are obviously unknown to the public and have reached widespread uncontested use over a number of years should be invalidated as if they were prior art.

- From the legislation in the EU and its membership countries, I earnestly demand the following direction in their future decisions on patent law and regulations:

- Restrict the granting of patents on software-based inventions to an absolute minimum; protection should be given only to technical inventions far beyond what normal research and development work would achieve for a given problem.
- Severely limit the life-span of patents on software-based inventions to an amount that is related to the speed of technological progress in this field; I suggest 2-4 years.
- Strengthen an effective mechanism of control over the patent offices and their work, both by official institutions and by the public. Far too many software-based patents are granted that, on closer scrutiny, could never be upheld according to the letter and spirit of the patent law.
- Ensure that the principles and the further development of Open Source software, a widely recognized form of technological advancement, are not endangered by patent law regulations.

3.5. Comments from others concerned about software patenting

3.5.1. Concerns

This section covers the responses sent directly to the European Commission as opposed to those responses that were forwarded by Eurolinux or were from overtly "open source" associations. It might be assumed that this group as been less influenced by explicit guidance from the open source movement. The following concerns are ranked in order of frequency. The percentage figure following the title of the concern is the percentage of respondents in the group that reported that concern.

Patents Favour Large Organisations (40%)

Many examples were given of the ways in which large organisation are seen to be placed at an advantage with respect to small organisations by software patents.

"As a small company, I cannot afford patent department. A single law-suit could ruin my company. Patent pools are created as bargaining chips. Companies without patent pools will be bought out."

Patents are anti Open Source (33%)

These respondents saw the "open source" movement as beneficial and claimed that patents were a threat to this movement. Open source software was seen as being particularly vulnerable to infringement claims due to the ease of analysis of source code as opposed to

object code. The open source principle of freedom to improve, amend and extend code was seen as being threatened by patents.

Philosophical Objections (27%)

A number of philosophical objections to software patents were put forward.

"Good ideas come from competition not litigation."

Software is Different (22%)

These correspondents claimed that the patent laws that may be useful for other technologies are inappropriate for software. The following distinguishing characteristics of software were identified: Short development times, reusability and modularity. Other respondents pointed out the life cycle model for software is different to that of other technologies, i.e.the principal cost is development time (not research not production).

"It is said that good programmers write good code, whereas great programmers re-use good code."

High Risk of inadvertent infringement (20%)

These respondents claimed that is would be very easy for a developer to inadvertently infringe patents. Various reasons were cited: lack of legal training, obvious nature of many patents, high number of software elements, poor quality of patent databases.

"Every program is a ticking time bomb of patent litigation".

Copyright is adequate protection (18%)

Many respondents acknowledged the need for IPR but regarded copyright as being the most suitable form of protection for software.

Patents are unnecessary (16%)

Experience in the US and elsewhere suggested to these respondents that software patents had demonstrated few benefits. Success in the sector was due to other factors.

"A short look at the history of some of the greatest breakthroughs in computing shows that none of them were helped by patents in the US. The internet (TCP/IP), Electronic mail (SMTP, MIME), The World Wide Web(HTML, URLs, HTTP)."

Low Quality of Software Patents (16%)

These respondents believed that software patents were likely to be of low quality being either obvious or based on inadequate searches of prior art. It was also thought that patents would not be described in a form that would make it easy for other developers to check for infringements or search for useful concepts. It was also thought that the long time to grant patents were inappropriate for this technology. These problems would be caused by inadequately staffed patent offices, in terms of numbers and qualifications.

Increased Product Cost (14%)

Product costs can be increased due to a number of factors according to these respondents: Need to employ lawyers, need to check for infringements, payment of licence fees, indemnity insurance.

<u>Abuse of Patents (11%)</u>

According to these correspondents, the Amazon "One-Click", British Telecom Hyperlink, Unisys LZW (GIF), "Display Exclusive OR" (US4197590) patents or claims are examples of patent abuse where large corporations "mined" "trivial" patents to the detriment of users and competitors.

"Patents encourage the hoarding of SW."

<u>Interoperability & Standards (9%)</u>

These respondents believed that interoperability of hardware and software, cross-network interoperability and consistency of user interfaces were critically dependent on unfettered sharing of information in the various fora who agree standards. Patenting was seen as impeding the standardisation process.

"If its authors had patented it, we can be sure that the Internet would not exist today."

<u>Other Concerns</u>

Concerns that were mentioned by at least 2 respondents were:

- Productivity is reduced by the need to divert engineers to legal tasks.

- Lawyers are the only beneficiaries.

- Software patents favour US Companies due to their size and experience of litigation.

- Patents introduce a risk element that may put off investors.

3.5.2. Proposals

The most common proposal was that, if there were to be software patents, the protection period should be shortened significantly. This also implies a shortening of the time to grant patents. Suggestions for period of protection ranged from 2 to 5 years with a granting time of a few weeks.

Other proposals included the following:

- Software Patents only to be enforceable against profit making enterprises, on products sold for profit where the source code is not made freely available.
- Create a 'Prior Art' register where source code can be placed open to inspection, anyone can copy and reuse the software- but no ideas employed by software in this registry will be patentable.
- Improve the existing copyright system by means of automating the means of authenticating the protected items and detecting infringements.

4. Comments from groups supporting patenting

4.1. Introduction

This section contains the responses from organisations that broadly support the concept of patents for computer-implemented inventions. Views range from a position slightly more restrictive than the position contained in the consultation paper through to a more liberal position akin to that currently applying in the US.

A total of 114 responses fell into this group divided as follows:

Academic Institutions 4
Industry Associations 16
IPR Associations 19
Governmental organisations 13
Large Industry 15
IPR Professionals 18
SME 9
Individual Software Developer 1
Individuals of unknown type 19

A significant number of respondents in this group represented substantial bodies of interest. Notable among these were the following:

- EICTA, the European Information and Communications Technology Industry Association – bringing together 23 national ICT associations from 16 European countries and 31 large ICT corporations with major operations in Europe.

- UNICE, the Union of Industrial and Employer's Confederations of Europe, has as members the 34 principal business federations from 27 European countries, plus 6 federations as observers, covering the continent from Ireland in the West to Turkey in the East; from Iceland in the North to Malta in the South

- FICPI, the International Federation of Intellectual Property Attorneys, broadly representative of the profession in private practice in more than 70 countries, including national Patent Attorneys, European Patent Attorneys, Representatives before OHIM, Patent Agents and Trademark Agents in all Community countries

- The European IT Services Association, the European Federation representing the computing services and software sector. It has 16 member associations who in turn represent over 2500 companies accounting for around €100 Billion in turnover.

4.2. Academics

There were 4 responses in this category. One was from an academic who has closely followed the "open source" movement. His comment gives a detailed rebuttal of a particular document produced by that movement. The other comments cited the benefits of patents to research institutions who trade commercially.

4.3. Industry Associations

There were 16 respondents in this category. They included Engineering, IT and general industry association, chambers of commerce and one association of SMEs. There were 3 international associations.

A significant majority of the respondents in this group expressed views that were consistent with the following quotation from one respondent:

"Current EPO practice, as articulated by the Commission's Consultation Paper, is a suitable benchmark for harmonisation by the European Union. "

Most associations did not want extension to business methods.

2 associations proposed a more liberal approach more closely aligned with US practice.

1 IT association supported software patents but proposed a sui generis approach.

The views of the association representing SMEs are covered in section 4.8.

Most associations believed that the traditional tests for patentability should be applied to software in the same way as any other technology.

Equality between Europe and US/Japan was also regarded as being important.

Many associations believe that the current uncertainty and lack of clarity on software patentability in Europe puts European business at a competitive disadvantage.

Some organisations claimed that a Directive was the best way to remove uncertainty although they counselled caution with respect to the degree of detail that a Directive should embrace.

One association, in common with some other supporters of computer related inventions, cast doubt on the claim of the "open source" lobby that there is a "consensus among economists that patents inhibit innovation in the software sector". In particular, the study most often cited by opponents of software patenting, ("Sequential Innovation, Patents and Imitation"; J. Bessen/E. Maskin, 1997/1999) was believed to be "inconclusive at best and flawed in many respects. It relies largely on data from the 1970's and 1980's."

The same association believed that patents promote innovation in many ways. "Not only does the protection afforded by patents provide incentives for research and development, the publication of patents and patent applications also play an important role in disclosing concepts which underlie inventions implemented in software. In fact, they may be the sole means for public disclosure of concepts underlying the code when software is distributed in its most common form with object code only."

This association believed that, despite the granting of many tens of thousands of patents for computer-implemented inventions over the last two decades in the United States, Europe and elsewhere, the dynamism and growth of the open source movement in recent years is testimony to the fact that patents are not inimical to the further development of open source software.

The following view was expressed: "Companies in Europe often refrain from seeking patent protection for their computer implemented inventions because they do not believe that such protection is possible. Statements by some organisations which claim to represent the "open source" community have been particularly damaging since they have continued to spread the incorrect perception among many companies in Europe that software related inventions are not patentable matter in Europe. An EU directive in this area, based on the approach outlined in the consultative document, would be particularly helpful in clarifying the situation for Europe's small and medium size software developers.

Another organisation expressed the view: "It is important that the patent examination process is of high and consistent quality."

4.4. IPR Associations

The responses in this section come from associations of IPR professionals. 6 of the associations were international and the remainder represented various groups of professionals in 6 countries.

The majority of respondents in the group shared the view expressed by one respondent:

"(a) Patents should be available for new, non-obvious inventions in any field of technology. Thus software inventions which provide a technical effect should be patentable, but pure business methods excluded.

(b) Current experience of EPO practice demonstrates that the patent system can successfully accommodate software inventions without the need for any special provisions or procedures."

One national association of IPR professionals had conducted a survey of its members in Spring 2000. The results included the following:

- Support to EPO jurisprudence
- Large majority in favour of removing "as such" from Article 52 of the EPC. The few dissenters from this view were concerned about the effect on previous judgements
- A slight majority were in favour of going further but in various directions.
- No objection on principle regarding patenting of business methods provided that they meet the traditional requirements for inventions
- Programme listings could be deposited
- There is a need for ad hoc training regarding the international classification of patents

The following proposals were made by various respondents regarding streamlining patent procedures:

- Patent offices to be able to retrieve prior computer programs.
- Special description requirements to facilitate subsequent searches by the patent offices should be laid out in the EPC. Other technologies have already adopted creative description solutions.
- There should be an open registration process, within the Patent Office . The Patent Office should maintain an openly accessible database of all the software techniques registered, already in use, patented or not.

A number of associations expressed the view that clarification of the present situation by the Commission would help national courts to align their decisions with those of the European Patent Office.

4.5. Governmental & Similar Bodies

13 governmental bodies responded. These included, Patent Offices, Ministries of Industry and Justice and Permanent Representatives to the EC. Responses came from the following Member States: Austria, Germany, Denmark, Finland, France, Italy, Portugal, Spain, Sweden.

All but 1 body supported harmonization according to the proposals in the consultation paper in general terms, although a few indicated that their comments were provisional since their consultation process was not yet complete. Some bodies indicated that there were dissenting minority views in their country, typically from the "open-source" movement.

1 body supported a more restrictive view. They were concerned about the impact on the "open source" movement. They suggested that there should be freedom to develop software according to the principles of the "open source" model whether or not the software was patented by another parties.

1 body indicated that a limited application of the "Utility Model" form of protection was available for software in their country.

1 body reported that they had established a research project on the subject on the micro & macro economic implications of the patenting of software: "Intellectual property in Information Technology in the field of competition & innovation." This will be ready in mid 2001. It will be made available at EU level.

The following number of software related patent applications were reported for Germany:

      1997   736 of which 622 were single claims i.e. likely to be from SMEs
      1998   874 of which 733 were single claims
      1999   938 of which 768 were single claims

Most bodies thought that computer-integrated inventions and software were of great importance for industrial and technological development. This applies not only to the IT sector but also to such fields as mechanics and biotechnology. As a consequence as one respondent put it: "There is, therefore, a major need for patent law to be framed in such a way as to provide adequate and well balanced protection for inventions of this type. The uncertainty currently prevailing in Europe with regard to the possibilities of obtaining such protection undoubtedly has to be removed."

One body stated that in their country a number of interested parties objected to a harmonisation Directive on the ground that it would suffice to clarify Article 52 of the European Patent Convention (EPC). Rather than introducing a Directive, these parties believed that it would be preferable to retain the practice whereby the law evolved through standpoints being taken in relation to specific cases on the basis of principles applying to inventions in general. However, the overall view, in that country, was that harmonisation

measures at Community level would be appropriate. Harmonisation of Member States' legislation in this area would therefore be welcome.

4.6. Large Enterprises

15 large enterprises responded. All were multinational, 4 had parentage outside the EU (3 US, 1 Japan).

All respondents broadly accepted the Key Elements contained in the consultation document subject to the detailed comments that they made against the individual elements in section 2.2. Most favoured quick action on harmonisation.

Two major telecommunications companies indicated that the majority, in one case 90%, of their current patent applications were software related.

Many organisations had sympathy with the view expressed by one respondent:

"The planned directive should have two main objectives: first, to establish on the level of European patent legislation the equal treatment of information technology with other branches of technology, as provided for in the TRIPs Agreement and, to a great extent, in the jurisprudence of the EPO Boards of Appeal and some national instances; second, to ensure that the level of protection through patents in Europe remains consistent with that in the US and Japan."

A number of organisations stated that fragmentation was caused in the European market by the fact that the European Patent Office (and also some of the National Patent Offices in Europe) issue software patents but at the same time, other National Patent Offices refuse to do so. Furthermore, this uncertainty casts a serious doubt on the validity of the software patents now issued in Europe.

Other problems caused by this uncertainty included:

-      The confusion encourages a popular view that software cannot be subject to patent protection. This misunderstanding means that organisations who hold this view or who are advised to this effect both fail to obtain protection for their innovation to the fullest extent that the law permits and risk infringing the rights of third parties through failing to appreciate the range of rights that such parties may have.

-      The uncertainties render it difficult to obtain appropriate patent protection for innovators in general. This difficulty is most felt by small and medium size companies who do not always have access to the excessively complex legal advice imposed by the current situation.

One respondent pointed out that that copyright is not a sufficient and adequate means of protection for software programs. He disagreed with the view that copyright, in arising automatically and hence requiring no expenditure to secure, offers better value for money in terms of protection than patents. The same respondent stated that: "There is a misconception that patents are prohibitively expensive to secure; our view is that the typical

cost of obtaining a patent at a few thousand pounds represents a fraction of the other development and marketing costs associated with bringing a software product to market.

One large enterprise had released a product as open source code with a view to accelerating its adoption and development. Elements of this technology had been patented. In the view of the respondent, this demonstrated that open source software can benefit from patenting.

Another multinational organisation stated that: "In order to obtain a reasonable return on their investments, European SMEs selling software must be active in the US and thus must be able to patent their software innovations in that country. In turn, this means that we must be able to patent software in Europe since protection on one's main market is always the reason behind filing a patent."

A major multinational computer company stated that it was most important that the present practice of the European Patent Office was endorsed in order to avoid any dramatic change in the extent of patentable subject matter.

4.7. IPR Professionals

5 responses in this section came from Law firms. The remainder came from individual IPR professionals.

This group were generally supportive of the harmonisation proposed in the consultation paper subject to the detailed points made against each Key Element in section 2.2.

A major law firm carried out a survey among its clients and others. Among the results were:

- Do you think that your business would be encouraged to innovate and research if it was easier to get patent protection for software? *Yes 59% No 41%*
- If it becomes easier to get patent protection for software, do you think that your business will have to spend money ensuring that it does not infringe third party patents? *Yes 81% No 9%*
- Do you think that business methods should be protected by patents? *Yes 45.4% No 54.5%*

One respondent believed that the determination of patentability of software-related inventions should rely more on the technical character of the invention than on the technical nature of the problem or of the contribution to the art. Another claimed that: "Publication of patents encourages others to innovate rather than to copy."

4.8. SMEs

There were 9 SME respondents in this category including a consortium of 30 SMEs and start-ups. The responses of individuals are also considered in this section.

Patents were seen as being useful to secured venture capitalization.

Many responses had sympathy with the following view:

"For small software companies patented intellectual property offers substantial business value:

- Differentiated product offering, with the added protection afforded by patented technology

- Leverage provided by the existence of a patent portfolio to initiate cross-licensing arrangements and gain access to technology that would otherwise be unavailable

- Securing of a steady stream of revenue from licensing patents to other companies."

Patents as collateral for the raising of venture capital was cited as a major benefit.

Other views expressed were:

- Many of the software patents problems in the USA have been the result of ill-informed patent examinations rather than the principle of software patents.

- IT businesses like any other need patents in order to manage their return on investment. Their development cycle times and other economic constraints are no different to other industries.

- All enterprises and in particular SMEs have need for stable and understandable rules for the patenting "game".

- "Our company is a research spin-off that develops and sells software; patenting is not only a fundament for securing our innovation against (large) competitors, but was a "sine qua non" for gaining venture capital."

- "I'm a well-known music software developer and I recently received a U.S. patent. Without patenting, would not have embarked on the development."

- "As long as the legal and organizational circumstances of patent filing in Europe do not change, we will continue filing at the USPTO."

5. Alternative Proposals

In addition to the alternative proposed by Eurolinux in section 3.2.3, a number of respondents suggested radical changes to the IPR regime for software. A summary of various proposals follows:

Proposal 1

The needs for different types of software are different. Software related to such things as communication protocols should be standardised and open. Application software needs specific protection.
Software authors should have a choice of templates
P1: Zero duration protection (giving a right to a licence fee for unlimited public use)
P2: Wide & short protection that permits commercial exploitation but does not impede the work of developers (like a patent shortened to 10 – 15 years with divulging of source code)
P3: Limited long protection (like a 20 year copyright).

Proposal 2

- A maximum of 5 years for software patents.
- Useful to have a grace period of six months following publication of the patent.
- A compulsory licence for patents so that "know-how" is not blocked.

- The establishment of a non-profit searching Institute for the Open
- Penalties for infringement should be moderate.

Proposal 3

The US model does not seem to work well however this should not be construed as an argument against *any* patent protection, but rather for a different model of patent protection, one that offers a shorter protection period and that requires submission of the source code to a central patent office. Provision of code would promote more accurate and narrow grants of intellectual property protection to software developers and allow the governing agency to ensure that the source code indeed performs as claimed. Furthermore, innovation in the areas in which patents are issued would not be hampered due to overly broad claims of protection of patent owners. Moreover, the coupling of shorter patent protections with provision of source code would facilitate easier dissemination of the code at the end of the protection period.

Proposal 4

1) A sui generis Law should be created for the protection of immaterial innovation and should be compatible with the goals of stimulating innovation and knowledge sharing
2) The exception to patentability for software programmes should not be removed from the Munich Convention in order not to let the European patent system extend to intellectual methods
3) The European patent system should be clarified by asking the European Patent Office to stop granting patents on immaterial innovation which clearly belong to the list of exceptions
4) Current owners of patents on immaterial innovations should be asked to convert their property title into a sui generis title whenever such sui generis title exists.

Proposal 5

Introduce a "Directive on Open Software" that defines open software and gives this software patent immunity. (No more detail was provided by the respondent.)

Proposal 6

The EU should seek to jointly develop a global sui generis regime for software to follow the current convergence of EU and US practice.

6. Actions Proposed by respondents

Respondents holding all points of view made suggestions for actions on the part of the various players in the field of software-related inventions. Many of these suggestions might help to reconcile differences between opponents and supporters of software patents. The following proposals were made by respondents:

6.1.1. Publicity

Many anti-software patent respondents were clearly unaware that there were already over 20000 software related patents in Europe. They should be informed about potential benefits and the procedures for applications.

6.1.2. Training

The quality of software patent examination should be improved by training and exchanges of views between patent offices and the EPO. SMEs could be offered training on software patent applications. Examples of what is, and is not, patentable could be made available.

6.1.3. Improving the patenting infrastructure

Patenting lead times need to be improved as does the ease of access to search databases.

6.1.4. Subvention

SMEs should be financially assisted with patent applications and searches.

6.1.5. Joint attack on patenting of business methods

While the opponents and supporters of software patents disagree on many issues, there is a substantial agreement on the need to avoid an explosion of patent awards in the area of business methods. Joint discussion and action planning should take place in order to develop a common goal and develop mutual trust.

6.1.6. Pressure on the US

The US is the dominant player in the world of software patents. The EU, however, should not be afraid to put pressure on the US to change policies and practice where these are believed to be in conflict with European and global interests.

6.1.7. Restraint on the part of the major players

Major players should refrain from ruthlessly exploiting opportunistic patents such as hyperlinks.

6.1.8. What should the European Commission do?

The following suggestions for actions by the Commission were made by supporters of software related patents:

- Make a public announcement to the effect that it supports the current EPO practice regarding the granting of patents on computer-implemented inventions.
- Take a lead in calling for the removal of the "software per se" clause in the European Patent Convention.
- Further the cause of the "Single European Patent".

Many called for swift action by the Commission on drafting a Directive although others urged caution, suggesting that harmonisation could be achieved by other means or that further consultation was necessary. Most of those who favoured a Directive believed that the Directive should limit itself to alignment with TRIPS principles. Views were split on whether jurisprudence or a Directive was the best means to harmonise detailed definitions of terms and tests.

Opponents of software patents wanted swift action on the part of the Commission but the radical nature of their proposals would require substantial negotiation if the Commission were minded to pursue a restrictive policy regarding software patents.