

EUROPE: OPEN MARKET... OPEN SOURCE?

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The recent Proposed Directive on the patentability of computer-implemented inventions takes the European Community a step further down the road towards patents for computer software. If the goal of the Proposed Directive is to facilitate market entry for individual programmers and small and medium enterprises -- as it must be within the framework of the European Treaty -- then the European Commission should not be expanding intellectual property rights in technology goods, which, by their very nature, will lose value to the public long before their monopoly rights expire. Rather, the Commission should look to the open source movement and other, more temporal means of protection to spur innovation and increase Europe's competitiveness on the worldwide market for technology goods.

INTRODUCTION

¶1 The recent Proposed Directive on the patentability of computer-implemented inventions² confirms that computer software, “as such,” is not patentable in the EU.³ As the European Commission’s explanatory memorandum for the Proposed Directive admits, however, “thousands” of patents have been granted by the European Patent Office (EPO) and the national patent offices for computer-implemented inventions despite the seemingly per-se exclusion.⁴ Previous attempts to harmonize the Community-wide policy on the patentability of computer software have failed due to differing interpretations of key decisions of the EPO Technical Board of Review by the national courts of the various European Union (EU) Member States.⁵

¶2 The goal of the Proposed Directive is to set a harmonized standard throughout Europe, while at the same time, to strengthen the software industry within the common market and make it more competitive worldwide.⁶ Recognizing the significant impact that the computer software industry has on the general

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² Commission Proposal for a Directive of the European Parliament and of the Council on the Patentability of Computer-Implemented Inventions, 2002 O.J. (C 151) 5 [hereinafter Proposed Directive], available at <http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/ce151/ce15120020625en01290131.pdf> (June 25, 2002).

³ Proposal for a Directive of the European Parliament and of the Council on the Patentability of Computer-Implemented Inventions, COM(02)92 final at 2 [hereinafter Explanatory Memorandum], available at http://europa.eu.int/comm/internal_market/en/indprop/comp/com02-92en.pdf (February 20, 2002).

⁴ *Id.* at 2-3. See also Ingo Kober, Address at Software Patents in Europe Conference at the Patent Office at the Queen Elizabeth Conference Centre in London (March 23, 1998) (transcript available at <http://www.patent.gov.uk/about/ippd/softpat/1420.htm>) (noting that the European Patent Office alone has granted over 20,000 software-related patents).

⁵ See Explanatory Memorandum, *supra* note 3, at 2.

⁶ See *id.*

economy, and in light of the current instability of global markets, any increase in investment in this sector has the potential to provide sizeable downstream economic relief.

¶3 Increased investment in innovation has historically been viewed as a direct corollary to increased protection, and the common and civil law systems throughout Europe have legislated on the general notion that a reward in the form of exclusive proprietary rights is necessary to encourage continued innovation. The continued expansion of the scope and duration of patent and copyrights has been routinely justified on this basis, and although the European Commission refused to lift the “as such” exclusion on patentability, it explicitly reserved this option for the future.⁷ The idea is to wait and see how the US software market fares given the less stringent patentability standard of the US Patent Act and act accordingly.

¶4 If the goal is to encourage market entry for individual programmers and small and medium enterprises (SMEs) – as it should be within the framework of the European Treaty – then the European Commission is evaluating the wrong end of the proprietary rights spectrum. Market analysis firm Gartner Dataquest estimates that large corporate software development companies have gained 5% of the total software market from the independent developers and SMEs in the last two years.⁸ The Eurolinux Alliance, an organization which promotes open standards and open source software, relied on similar data during the discussion phase preceding the release of the Proposed Directive.⁹ The alternative, Eurolinux asserts, is a move towards full competition and a free market economy, exactly what the European Treaty envisages for the EU as a whole.

¶5 Given the uncertain financial sustainability of the open-source movement, what is presently needed is an intermediary legal regime which continues to offer the traditional reward of exclusive rights, but on a more competitive basis. In the context of computer programs, trade secret laws have proven most effective in their ability to protect source code, elements of new software products awaiting patent issue, and subject matter falling outside the scope of traditional patent and copyright laws.¹⁰ Information in the form of a computer program may be protected, giving the proprietor the power to enjoin another from improper acquisition of source code and to prevent use of secret information as a “springboard” to future development.¹¹

⁷ See *id.* at 11.

⁸ See Joanne M. Correia, *Software Market Stalled in Global Economy's Slow Engine*, at <http://www4.gartner.com/pages/story.php.id.3350.s.8.jsp> (Feb. 28, 2003).

⁹ See Explanatory Memorandum, *supra* note 3, at 4.

¹⁰ See *Computer Assos. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 717 (2d Cir. 1992) (“Trade secret protection, the branch of unfair competition law at issue in this case, remains a ‘uniquely valuable’ weapon in the defensive arsenal of computer programmers. Precisely because trade secret doctrine protects the discovery of ideas and systems which are explicitly precluded from coverage under copyright laws, courts and commentators alike consider it a necessary and integral part of intellectual property protection extended to computer programs.” (internal citations omitted)).

¹¹ See ROBERT DEAN, *THE LAW OF TRADE SECRETS* 444 (The Law Book Co. Ltd. 1990).

SOFTWARE PATENTS IN EUROPE

¶6 Protection of computer software in Europe is achieved through a rubric of copyright and patent laws. While copyright offers the creative individual proprietary rights in the expression of a computer program, “[t]he ideas and principles that underlie any element of a program (including those underlying those parts of a program that provide for interconnection and interaction between elements of software and hardware (‘interfaces’))” are specifically excluded from copyrightability.¹² The challenge, therefore, is to sweep the uncopyrightable elements of computer software within the scope of patentability. “The valuable aspect of software is the inventive skill in the concept behind the program. But the law has no means of giving such a concept protection.”¹³

¶7 While the Convention on the Grant of European Patents (“EPC”) fails to specifically define the term “invention,” the following are not to be considered “inventions”: schemes, rules and methods for performing mental acts, playing games or doing business, and *programs for computers*.¹⁴ These are perhaps patentable as a component to an otherwise patentable invention, but are not to receive protection “as such.”¹⁵

¶8 Rule 29(1) of the EPC requires that patent claims disclose the “technical features” of an invention.¹⁶ This has evolved into a “technical solution to a technical problem” requirement which has proven to be the driving force behind the EPO Technical Board of Appeal decisions regarding the patentability of computer software.¹⁷

¶9 EPO practice, and by implementation, the practice of the national patent offices of the EU Member States, was amended in light of the Technical Board of Appeal’s decision in IBM T 1173/97 and T 0935/97. Both decisions refer to claims for software which, when run on a general purpose computer, cause the computer to function differently than the manufacturer intended.¹⁸ The computer effectively becomes a new

¹² Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs, 1991 O.J. (L 122) 42, available at http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31991L0250&model=guichett (May 17, 1991).

¹³ DEAN, *supra* note 11, at 414-15.

¹⁴ Convention on the Grant of European Patents [EPC], Oct. 5, 1973, art. 52(2)(c), 13 I.L.M. 268, 285, available at <http://www.european-patent-office.org/legal/epc/e/ma1.html> (last modified May 1, 2003).

¹⁵ *Id.* at art. 52(3).

¹⁶ *Id.* at R. 29(1), available at <http://www.european-patent-office.org/legal/epc/e/ma2.html#REG> (last modified May 1, 2003); see also VICOM/Computer-Related Invention, T208/84, [1987] E.P.O.R. 74, 79 (Technical Bd. App. 1986) [hereinafter VICOM] (“The Board considers that this condition is met if the features mentioned in the claims will be understood by those skilled in the art as referring to the technical means for carrying out the functions specified by such features.”), available at <http://legal.european-patent-office.org/dg3/biblio/t840208ep1.htm> (July 15, 1986).

¹⁷ See, e.g., IBM/Semantically-related expressions, T52/85, [1989] E.P.O.R. 454, 459-60 (Technical Bd. App. 1989) [hereinafter IBM/Semantically-related expressions], available at <http://legal.european-patent-office.org/dg3/biblio/t850052eu1.htm> (Mar. 16, 1989); VICOM, *supra* note 16.

¹⁸ See IBM/Computer programs, T1173/97, [2000] E.P.O.R. 219, 229-30 (Technical Bd. App. 1998), available at <http://legal.european-patent-office.org/dg3/pdf/t971173ex1.pdf> (July 1, 1998); IBM/Computer programs, T935/97,

machine when software is incorporated. The “new machine” concept conforms to the patentability criteria of novelty and inventive step under EPC Article 52(1), and in principle ensures that only those inventions which make a significant contribution to existing technology, when considered as a whole, will be rewarded with protection.¹⁹ Claims specifying a programmed computer system or its technologically equivalent process would no longer be categorically denied if the program at issue made a technical contribution to the state of the art.²⁰

¶10 The IBM decisions would never have the harmonizing effect intended by the EPO, for the simple reason that decisions of the EPO Technical Review Board are persuasive but not binding.²¹ Varying interpretations amongst the courts of the EU Member States have resulted in unpredictability in the potential outcome of decisions both on a case-by-case and State-by-State basis.²² Recently, such unpredictability came to be viewed as having a negative impact on Community goals of a common market and gave rise to suggested changes in the current state of the law.²³

¶11 Discussions for change began with the 1997 Green Paper on the Community Patent and the Patent System in Europe.²⁴ The key points in these discussions focused on the need for harmonization in national laws, increased certainty in the Community-wide patent system, and the elimination of the “as such” per-se exception to patentability. The negotiations process lasted more than three years, concluding with a final round of discussions in October 2000. Member States were offered the opportunity to make final comments on two basic proposals: first, the need for Community action towards harmonization and second, an examination of specific provisions of national laws with considerations of how best to achieve harmonization.²⁵

¶12 The Proposed Directive does not actually create new patentable subject matter (as some Member States and industry representatives hoped it might) but rather clarifies existing rules in an attempt to diminish the differences amongst the Member States’ implementation of those rules.²⁶ Key to the Proposed Directive is the definition of a “computer-implemented invention” as “any invention the performance of which involves

[1999] E.P.O.R. 301, 312 (Technical Bd. App. 1999), available at <http://legal.european-patent-office.org/dg3/pdf/t970935eu1.pdf> (Feb. 4, 1999).

¹⁹ See VICOM, *supra* note 16, at 80-81.

²⁰ See *id.*

²¹ See GERALD PATERSON, THE EUROPEAN PATENT SYSTEM: THE LAW AND PRACTICE OF THE EUROPEAN PATENT CONVENTION 11 (Sweet and Maxwell, 2001).

²² See Explanatory Memorandum, *supra* note 3, at 2 (noting that implementation of the IBM decisions differed among States and between States and the EPO). See also Patent Office Practice Notice, [1999] R.P.C. 563, 565 (noting the differences between the English Patent Office and EPO practice prior to the IBM T935/97 and T1173/97 decisions).

²³ See Explanatory Memorandum, *supra* note 3, at 3.

²⁴ See generally Promoting innovation through patents: Green Paper on the Community patent and the patent system in Europe, COM(1997)314 final.

²⁵ See Explanatory Memorandum, *supra* note 3, at 3.

²⁶ See *id.*

the use of a computer, computer network or other programmable apparatus and having one or more *prima facie* novel features which are realised wholly or partly by means of a computer program or computer programs.”²⁷ The conditional requirements of technical, non-obvious contribution to a technical field are maintained, and the Commission highlights the dangers of lowering the standards for patentability (as it claims the US has done in its zeal to offer patents to computer-related inventions).²⁸

¶13 It is unclear how the Proposed Directive will make any strides towards alleviating the potential for conflicting interpretations in the national courts. EU Regulations and Directives are binding on the EU Member States alone, and do not have a direct impact on the application of the EPC.²⁹ At best, Directives mandating behavior differing from EPO practice may be viewed as a persuasive indication that there is a need for change or a different interpretation of an EPC provision.³⁰ Although the “as such” exception remains, the Economic and Social Council of the EU notes that the “Directive makes it possible to patent a programmed computer or programmed network or a process implemented through the execution of a program. . . . The door thus seems wide open to a software patent, as no programmable electronic hardware can operate without software and as the distinction between software ‘by itself’ and ‘software producing technical results,’ the product of legal casuistry, is indefinable in practice as all software is made to run on a computer or an electronic component, either as a system or as an application.”³¹

¶14 It is equally unclear how the Proposed Directive will achieve its goal of facilitating market entry for SMEs. The Commission identifies the problem as one of lack of communication, setting the priority in its explanatory memorandum of better informing SMEs, individual programmers and others about the benefits and ease of patent application.³² The Commission notably fails to acknowledge the expense and delay associated with the patent application process. In a flagging economy where even the industry giants are cutting R&D expenditures and are managing their IP portfolios more frugally, it is unreasonable to assume that greater familiarity with the patent system will lead to increased market access for higher risk, undercapitalized start-ups and SMEs.

¶15 SMEs in the IT industry have already figured out that the patent system is the cause of, not the solution to, their exclusion from the European software market. They see the industry giants benefiting from the extensive scope and duration of protection and logically conclude that the patent system is working against them. The commercial reality is that the twenty years of protection which follow a lengthy and costly administrative procedure are better suited to a cash-cow invention to be offered in a less dynamic market.

²⁷ Proposed Directive, *supra* note 2, at art. 2.

²⁸ *See id.*

²⁹ *See* PATERSON, *supra* note 21, at 12.

³⁰ *See id.* at 12-13.

³¹ Economic and Social Council of the European Union, *ESC 2002:09: Europe should reconfirm non-patentability of software!*, at <http://swpat.ffii.org/vreji/papri/eubsa-swpat0202/esc0209/index.en.html> (Sept. 2002).

³² *See* Explanatory Memorandum, *supra* note 3, at 4.

THE EUROPEAN SOFTWARE MARKET

¶16 While the global trend has consistently been a lengthening of the duration of intellectual property rights, the average shelf-life of software products has been shrinking proportionately. Meanwhile, and in spite of the general economic downturn, the software market continues to expand. Estimated at €56.7 billion in 2000, the value of the European software market in 2005 is forecasted to nearly double to €109.3 billion.³³

¶17 Much of the profit to be realized immediately follows a product's launch in the market.³⁴ Delaying market launch pending the administrative process of securing proprietary rights not only hinders the availability of new technology to society but retards and reduces the return on investment (ROI) earned once the product is finally launched. By the time protection is secured, technology will have surged forward; if it hasn't, it should have, and this is only further proof of the way the present patent system hinders rather than encourages innovation.³⁵ "Because of the potentially limited time span in which technology will be marketable (and, therefore, valuable), any errors in striking the balance between unfettered use and strictly enforced restrictions [through traditional intellectual property regimes] can have catastrophic consequences."³⁶

¶18 As for "strictly enforced restrictions," these are tolerated by the European Treaty and the European Court of Justice (ECJ) in the context of intellectual property rights but not warmly welcomed. ECJ decisions confirm that intellectual property rights holders have a limited power to restrict competition.³⁷ The nature of intellectual property rights is the power to exclude, and a monopoly environment can easily be facilitated by industry standards. Where consumer demand can be adequately met by supply for a given, standardized product (such as a software suite) perceived to be of necessity by the market as a whole, proprietary rights can function as a locking mechanism. Once hooked, consumers will remain with a particular product because the costs associated with switching to a new product, even to one of superior technological capability, may be perceived as too high to justify the switch.³⁸ The scope and duration of intellectual property rights thus bear a

³³ Business Software Alliance, *The Thriving European Software Industry*, at 2, at <http://global.bsa.org/usa/policyres/admin/2002-04-17.108.pdf> (Apr. 17, 2002).

³⁴ William Kingston, *Intellectual Property Needs Help From Accounting*, 11 EUROPEAN INTELLECTUAL PROPERTY REVIEW 508, 510 (2002).

³⁵ James Bassen & Eric Maskin, *Sequential Innovation, Patents and Imitation*, at 4-6, at <http://www.researchoninnovation.org/patent.pdf> (January 2000) (including statistical analysis demonstrating that strong patent policies hinder innovation). See also Kingston, *supra* note 34 ("The public interest requires that inventions should be made, then innovated, and then diffused as quickly and widely as possible.... Unfortunately, much innovation diffusion at present is the result of failure of the patent system to deliver the protection it promises—especially in non-chemical fields." (internal citations omitted)).

³⁶ Doris Estelle Long, *The Protection of Information Technology in a Culturally Diverse Marketplace*, 15 J. MARSHALL J. COMPUTER & INFO L. 129, 166 (1996).

³⁷ See, e.g., Joined Cases C-241/91 & C-242/91, *Radio Telefis Eireann (RTE) v. Commission*, 1995 E.C.R. I-743 (recognizing the right of intellectual property rights holders to restrict competition).

³⁸ See Martin Brampton, *Devil's Advocate: Handcuffed by the Industry Standard*, at <http://www.silicon.com/opinion/500017/1/1031575.html> (Feb. 26, 2002) (noting that software "vendors use proprietary standards to prevent freedom of choice and to pre-empt future purchase decisions. When they are able to

direct relationship to the number of commercially available alternatives and to the consuming public's willingness to even consider those alternatives.

¶19 The industry giants are understandably quick to defend their proprietary rights against “unfettered use.” The open source software movement, which encourages unhampered access to source code and pooling of programming results, has been labeled an “intellectual property destroyer.”³⁹ A General Public License (GPL) functions not to discourage incremental development and modification but to require that these be made available to others.⁴⁰ Software development is unique in that the “stepping stone” development style is not plagiaristic convenience but a technological necessity.⁴¹

¶20 The Eurolinux Alliance for a Free Information Infrastructure (“Eurolinux”) identifies itself as an “open coalition of commercial companies and non-profit associations united to promote and protect a vigorous European software culture based on copyright, open standards, open competition and open source software such as Linux.”⁴² The organization includes among its goals protecting and promoting “competition and innovation in the IT industry.”⁴³

¶21 Progress in the area of computer science occurs by means of incremental innovation: “programmers commonly adopt software design elements . . . by looking around for examples or remembering what worked in other programs. These elements are sometimes adopted wholesale, but often they are adapted to a new context or set of tasks. In this way, programmers contribute to and benefit from a cumulative innovation process.”⁴⁴ Open source programmers recognize the need to tailor individual reward to meet the needs of this unique development style.

¶22 The key difference between open source and today's proprietary rights regime is one of coordination. “To be successful, open source must also be designed in a modular way so that groups of programmers can work independently on different components.”⁴⁵ While acknowledging the need to borrow from and build

speak of their strictly licensed exclusive technology as 'industry standard' they are at an advanced stage in their marketing programme.”)

³⁹ *Survey: Out in the Open*, ECONOMIST, Apr. 14, 2001, at 8 [hereinafter *Survey*] (quoting James Allchin of Microsoft).

⁴⁰ *See id.*

⁴¹ *See Lotus Development Corp. v. Borland Intl, Inc.*, 49 F.3d 807, 818 (1st Cir. 1995), *aff'd by an equally divided court*, 516 U.S. 233 (1996) (“We also note that in most contexts, there is no need to ‘build’ upon other people’s expression, for the ideas conveyed by that expression can be conveyed by someone else without copying the first author’s expression. In the context of methods of operation, however . . . [o]riginal [software] developers are not the only people entitled to build on the methods of operation they create; anyone can.”)

⁴² Eurolinux Alliance for a Free Information Infrastructure, *About Eurolinux*, at <http://www.eurolinux.org/index.en.html> (last modified October 6, 2003). Linux, an operating system available to the public at no charge, was created in 1991 by Finnish student Linus Torvalds.

⁴³ Eurolinux Alliance for a Free Information Infrastructure, *About Eurolinux*, at <http://www.eurolinux.org/about/index.en.html> (last modified September 21, 2003).

⁴⁴ Paula Samuelson et al., *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COL. L.REV. 2308, 2330-31 (1994).

⁴⁵ *Survey*, *supra* note 39.

upon existing technological platforms, the approach ensures a focused, non-duplicative outlay of resources. Rather than waste time, energy and financial resources in searching for new ways around existing proprietary concepts, open source integrates them seamlessly and efficiently.

¶23 Predictions were, and certainly the industry giants hoped, that the open source movement was merely another IT fad that would quickly lose notoriety.⁴⁶ It bears noting that, within two years of its overwhelmingly successful IPO in December 1999, the American open source corporation VA Linux Systems cut nearly twenty-five percent of its staff.⁴⁷ Early 2001 projections concluded that it would take longer – almost a year longer – to achieve profitability.⁴⁸ In contrast to more traditional software development firms, VA Linux Systems derives its profits from the sale of customized server platforms (or “kernels”) and the services associated with implementing an open source network.⁴⁹

¶24 The financial sustainability of the open source movement is currently being tested, in the midst of market conditions relatively hostile to start-up ventures and high-risk investment. Europe should be using this opportunity not only to evaluate the US patent system, with its less stringent patentability standards in the context of computer software, but also the viability of the open source movement, with the end goal of providing market access to individual programmers and SMEs in mind.

FILLING IN THE GAPS WITH COMMERCIAL FAIRNESS

¶25 Even in the booming IT/dot.com market of the late 1990’s, concerns were raised about the potential for barriers to market access being artificially imposed on SMEs to the benefit of industry giants.⁵⁰ Even within the common market, proprietary rights in intellectual assets offer commercial software manufacturers the power to restrict competition, retard growth and strategically plan releases of new technology.⁵¹ Copyrights and patents are, by their very nature, intended to provide a monopoly.⁵² Basic economic principles teach that the absence of artificial restraints on the market, in this case, intellectual property rights,

⁴⁶ *See id.*

⁴⁷ *See id.*

⁴⁸ *See id.*

⁴⁹ *The penguin gets serious*, ECONOMIST, Jan. 27, 2001, at 64.

⁵⁰ The European Commission notes in its Explanatory Memorandum that the issue of patentability of computer software intensified in 1999, when SMEs and open source advocates joined the debate, arguing that the present patent system offers them insufficient protection against larger market players. These concerns were heartily voiced during the European continuation of the American Microsoft antitrust trial. Bundling, it was noted, has a “significant effect on [Microsoft’s] ability to enter new markets and tackle the smaller software companies that are in a niche.” Robert J. McCartney, *In Europe, Microsoft Faces a Harder Sell*, WASH. POST, Feb. 8, 2003, at E01.

⁵¹ *See* Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 882-97 (1990).

⁵² *See* *Singer Mfg. Co. v. June Mfg. Co.*, 163 U.S. 169, 185 (1896) (“It is self-evident that on the expiration of a patent the monopoly created by it ceases to exist, and the right to make the thing formerly covered by the patent becomes public property.”). *But see* Letter from Thomas Jefferson to Isaac McPherson (Aug. 13, 1813), in 1 THE FOUNDERS’ CONSTITUTION 601 (Philip B. Kurland & Ralph Lerner eds., The Univ. of Chicago Press 1986),

leads to a fully competitive market.⁵³ The financial advantage to any one firm is limited to the time it takes others to develop a newer, more technologically advanced product.⁵⁴

¶26 In an industry in which progress demands access to an existing technological platform, and in the absence of proprietary controls, the greatest threat to continued innovation and investment is the potential for piracy.⁵⁵ Even the present proprietary rights regime has proven incapable of effectively addressing this issue; a study conducted by International Planning and Research in the year 2000 and cited by the Business Software Alliance in its 2002 report on the health of the European software industry found that more than thirty percent of software on Western European computers was unlawfully downloaded.⁵⁶ The value of this loss was estimated at €3.4 billion, six percent of the value of the entire European software industry.⁵⁷

¶27 The solution to the problem lies not in harmonized proprietary rights schemes, as the Business Software Alliance proposes,⁵⁸ but in the implementation of universally accepted principles of commercial fairness. Trade secret law has historically been used to fill in the gaps left between other forms of intellectual property rights. Where copyright will not extend protection to ideas and utilitarian methods and where patent protection cannot be granted on grounds of obviousness or lack of novelty, trade-secret protection may rescue works from immediate depository in the public domain.

¶28 Trade secret law has a larger role to fill in the context of computer software. More than a gap-filler between copyright and patent, trade secret law reinforced by contract provisions and the use of new encryption technologies can effectively address unauthorized disclosure in the time period when this is most needed, immediately following a product's launch on the market. While it opens market access to individual developers and SMEs by eliminating the administrative delay and expense of a national proprietary rights

available at <http://press-pubs.uchicago.edu/founders/documents/v1ch16s25.html> (2000) (“[i]nventions . . . cannot, in nature, be a subject of property” because an idea is “incapable of confinement or exclusive appropriation.”).

⁵³ See generally Merges & Nelson, *supra* note 51, at 908 (describing the way in which patent rights were used to block advances by competitors in specific industries, such as the automobile industry, semiconductor chips, and early electric devices and concluding that “multiple and competitive sources of invention” will best encourage innovation and that patent law should “encourage inventive rivalry.”).

⁵⁴ See *Lotus*, 49 F.3d at 821 (Bodin, C.J., concurring) (“[I]f a better spreadsheet comes along, it is hard to see why customers who have learned the Lotus menu and devised macros for it should remain captives of Lotus because of an investment in learning made by the users and not by Lotus. *Lotus has already reaped a substantial reward for being first*; assuming that the Borland program is now better, good reasons exist for freeing it to attract old Lotus customers: to enable the old customers to take advantage of a new advance, and to reward Borland in turn for making a better product. If Borland has not made a better product, then customers will remain with Lotus anyway.” (emphasis added)).

⁵⁵ The Thriving European Software Industry, *supra* note 33, at 5.

⁵⁶ See *id.*

⁵⁷ See *id.*

⁵⁸ See *id.* at 5-7.

system, trade secret laws allow the industry giants the opportunity to achieve ROI in the period during which the product is most profitable.⁵⁹

¶29 This time period is protected by making unauthorized access actionable. This is enforceable on a number of juridical levels, including unfair competition, the law of confidence, criminal sanctions and contract.⁶⁰ Considered as a whole, this body of law can be applied to improper acquisition of trade secrets by employees, competitors and software users.

¶30 The “secret” nature of the information is key, and in practice this means that a decision must be made prior to filing for a patent, as the filing itself is disclosure and thus destroys secrecy. For obvious reasons, therefore, trade secret laws present no formal filing or registration procedure and they do not require novelty or utility.⁶¹ Correspondingly, they lack the benefit of a relatively dependable duration of protection and formal system for seeking remedies.⁶² Once a trade secret is disclosed, it is irreparably a part of the public domain.

¶31 The launch of a new software product onto the market will not explicitly disclose the secrets of its inner workings. Source code, being readable by humans, is especially susceptible to prying eyes. For this reason, the majority of mass-produced software products enter the market in object code form.⁶³ Access to what is presently deemed an unprotectable idea is only possible through decompilation or reverse engineering.⁶⁴

¶32 The effort which goes into reverse engineering may equal or exceed that necessary to create the original program.⁶⁵ Reverse engineering, therefore, does not interfere with a software product’s natural shelf life; in the time it takes for others to reverse engineer the market leader’s code, the market leader is achieving ROI driven by characteristically high volume consumer demand.

¶33 Decompilation, copying and other means of unfair access may be addressed in contractual provisions, violations of which may lead to civil and/or criminal sanctions. By controlling individual behavior through

⁵⁹ See Kingston, *supra* note 34, at 512 (“Lead time is recognised by businessmen as one of the best ways of protecting investment in innovation.”).

⁶⁰ See 2 DAN B. DOBBS, *THE LAW OF TORTS, PRACTITIONER TREATISE SERIES 1307* (West Group Publishing 2001).

⁶¹ See RESTATEMENT OF TORTS § 757 cmt. b (1939) (“Novelty and invention are not requisite for a trade secret as they are for patentability.”).

⁶² See DEAN, *supra* note 11, at 24-25.

⁶³ John C. Yates & Anthony E. DiResta, *Software Support and Hardware Maintenance Practices: Tying Considerations*, 8 *THE COMPUTER LAWYER* 17, 18-19 (1991).

⁶⁴ See, e.g., *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1525 (9th Cir. 1992). Decompilation is a mechanical process wherein a program’s code is inserted into a computerized machine called a decompiler, which mechanically reconstructs the program’s source code. *COMPUTER LAW 219* (Chris Reed & John Angel eds., Blackstone Press Ltd. 4th ed. 2002). Reverse engineering, in contrast, is a painstaking manual procedure which often fails to yield immediate or accurate results. Methods of reverse engineering include the following: reading design notes and other materials about the program; observing a program in operation and its effects on a computer; performing a static evaluation of the program instructions; and performing a dynamic evaluation of the program instructions as the program is being run on a computer.

⁶⁵ See *Whelan Assocs., Inc. v. Jaslow Dental Lab., Inc.*, 797 F.2d 1222, 1237 (3d Cir. 1986).

universally accepted principles of corporate fairness, protection is limited to the time in which it is needed most without a corresponding decrease in the overall incentive to invent.

CONCLUSION

¶34 The European Treaty tolerates the barriers to trade created by intellectual property rights, but the European Commission has not yet discovered how to prevent these barriers from being erected against individual programmers and SMEs in the IT industry. The Proposed Directive recognizes this problem and suggests that the way to address it is by informing SMEs of the function and benefit of intellectual property rights. Yet even in a healthy economy, SMEs are faced with high risk challenges to capitalization and investment. In today's global economic downturn across the business sectors, it is unreasonable to assume that underfunded start-ups and small businesses in a market traditionally dominated by corporate giants will be able to make the time and financial investment necessary to apply for proprietary rights.

¶35 Nor is it clear if SMEs had these proprietary rights whether these would prove beneficial.⁶⁶ The problem lies in computer software's inability to fit neatly within either of the traditional intellectual property regimes of patent and copyright. The principles behind the function of a general purpose computer are viewed as fundamental, predictable and unoriginal. This is clearly evidenced in various EPO Technical Board of Appeal decisions refusing to grant protection to so-called inventions which do nothing more than make a general purpose computer perform a standard task.⁶⁷ Under the Proposed Directive, a patentable computer-implemented invention must be made to perform a non-standard task. To achieve this, a programmer must necessarily start with the platform that accomplishes the standard task and contribute to it or modify it in some way. Access to that original platform is necessary, and innovation is therefore delayed where access is limited by the extensive scope and duration of proprietary rights.

¶36 The current IP regime, as it is applied to computer software, fails to consider this unique "stepping stone" development style. It also ignores the market realities inherent in the IT industry. "Given the short span of viability of most technology, by the time protection attaches under TRIPs, much of today's technology will have lost market value."⁶⁸

¶37 The existence of the open source movement is, at a minimum, proof that the computer software industry recognizes the characteristics of its market and the possibility that the current protection schemes are inappropriate in this context. A release of computer-related inventions into a free market economy facilitates

⁶⁶ See ETAN EXPERT WORKING GROUP FOR THE EUROPEAN COMMISSION, STRATEGIC DIMENSIONS OF INTELLECTUAL PROPERTY RIGHTS IN THE CONTEXT OF SCIENCE AND TECHNOLOGY POLICY 28 (1999) ("In to-day's complex technologies, money is only made by those firms that can develop them into commercial products through subsequent incremental changes."), available at <ftp://ftp.cordis.lu/pub/etan/docs/ipr.doc> (June 1999).

⁶⁷ See, e.g., Siemens/Character Form, T158/88, [1992] E.P.O.R. 69 (Technical Bd. App. 1989), available at <http://legal.european-patent-office.org/dg3/biblio/t880158fp1.htm> (Dec. 12, 1989); IBM/Semantically-related expressions, *supra* note 17.

market entry for individual programmers and SMEs but also carries with it a heightened potential for piracy and thus potentially less incentive to create.

¶38 Trade secret law places the burden of secrecy on the software developer while simultaneously confining employees, competitors and users to a set behavioral standard based on commercial fairness. While secrecy may be viewed as a key argument against trade secret protection for other intellectual products, computer software should not give rise to such concerns. The temporal nature of the technology will dictate the market and the developer who intends to capitalize on his innovation does not have the leisurely option of withholding a new product from the public; a competitor will quickly fill any unsatisfied consumer demand. The increasing size and value of the European software market should be sufficient encouragement to develop new computer-related inventions and disclose these in a timely manner. This too, is the advantage of which open source advocates are most proud, the ability of their programs to adapt quickly and seamlessly to rapidly evolving consumer expectations. Trade secrets are not explicitly disclosed when software products are launched on the market; these are technologically decipherable, but access should be limited to commercially acceptable means.

¶39 Although trade barriers are tolerated in the form of intellectual property rights, more effort should be made to bring technology-related inventions in line with market realities and the common market principles of the EU Treaty. If the European Commission's goal is to facilitate market access for individual programmers and SMEs, the focus should be on increasing competition and not on increasing monopoly powers. Where market failure may yet be a risk for the open source movement, trade secret law presupposes that sufficient lead time is provided "to overcome the problem of appropriability inherent in public goods."⁶⁹

⁶⁸ Long, *supra* note 36.

⁶⁹ See J.H. Reichman, *Charting the Collapse of the Patent-Copyright Dichotomy: Premises for a Restructured International Intellectual Property System*, 13 CARDOZO ARTS & ENT. L.J. 475, 518 (1993) (analyzing the erosion of the clear division between copyright and patent by creation of new "hybrid" forms of intellectual property such as database rights and semiconductor chip protection acts).