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Protecting New Technologies in Latin America: The Case for Computer Software Patents in Argentina

Miguel E. Sciancalepore

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Protecting New Technologies in Latin America: The Case for Computer Software Patents in Argentina

Miguel E. Sciancalepore*

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I. INTRODUCTION

Argentine patent law, literally construed, expressly excludes computer software as patentable subject matter.¹ However, in 2003, the Argentine Patent and Trademark Office² (APTO) broadly interpreted the exclusion and instructed examiners to allow the patentability of software when it is part of a larger invention (such as a machine or an industrial process).³ Yet pure software (when for example, it is claimed alone as an article of manufacture) is still not considered a patentable invention.⁴

This article argues that when Argentine law is construed in light of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)⁵ and the Argentine Constitution,⁶ pure software is not excluded from patentability. So interpreted, the Patent Statute only excludes the software code⁷ itself (already protected under copyright)⁸ when claimed alone without any software functionality or behavior. The law only excludes software when it represents an abstract theory, mere text, or a mere mathematical formula.

To consider computer programs as patentable inventions, this article proposes to think of them as machines or devices that produce a concrete effect in the world.⁹ Even if software is con-

1. See Law No. 24.481, amended by Law No. 24.572, Mar. 22, 1996, B.O. 22/3/96, available at <http://infoleg.mecon.gov.ar/infolegInternet/anexos/35000-39999/35001/texact.htm> [hereinafter Argentine Patent Law].

2. See Instituto Nacional de la Propiedad Industrial [Industrial Property National Institute], <http://www.inpi.gov.ar> (last visited Jan. 26, 2007) [hereinafter APTO].

3. See Instituto Nacional de la Propiedad Industrial Directrices Sobre Patentamiento [Industrial Property National Institute Guidelines], pt. C, ch. IV, ¶¶ 2.1, 2.1.3(a) (Dec. 10, 2003), available at <http://www.inpi.gov.ar/pdf/DirectricesPat243.pdf> [hereinafter INPI, Patentability Guidelines]; see also *id.* app. VII, at 149.

4. See *id.* pt. C, ch. IV, ¶ 2.1.

5. Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1c, Legal Instruments-Results of The Uruguay Round, 33 I.L.M. 1125, 1197 (1994), arts. 10, 27 [hereinafter TRIPS], available at http://www.wto.org/english/docs_e/legal_e/27-trips.pdf.

6. CONST. ARG. arts. 17, 31, 75.22 (1853), rev. 1994, available at http://www.argentina.gov.ar/argentina/portal/documentos/constitucion_ingles.pdf (last visited Jan. 26, 2007).

7. The words 'software code' and 'code' are used interchangeably throughout this article.

8. See Law No. 11.723, amended by Law No. 25.036, Nov. 11, 1998, B.O. 30/IX/1933, available at <http://infoleg.mecon.gov.ar/infolegInternet/anexos/50000-54999/54178/norma.htm> [hereinafter Argentine Intellectual Property Law].

9. See Pamela Samuelson et al., *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308, 2320-25 (1994).

structed with text (the source code) or with mathematical formulas or logical methods, those elements are usually applied in a concrete economical activity and produce a concrete effect.¹⁰ Therefore, software should be considered an invention, regardless of the way it is claimed (as an article of manufacture, a process, or part of a larger invention).

The interpretation of Argentine law proposed by this article welcomes the APTO decision to accept some patents on software related inventions¹¹ as a step in the right direction. But it is not enough. There are legal and policy reasons to allow patentability of pure software in Argentina. Local and international software developers should pursue the patentability of their inventions in Argentina and challenge any decision that disputes the notion that their product is not an invention. The interpretation of Argentine patent law proposed in this article is intended to be a useful contribution to that purpose.

This article also offers policy reasons in favor of allowing patentability of pure software in Argentina. It is in everyone's best interest to seek balanced intellectual property rights. Although this article intends to contribute to this debate, it is not within the scope of this article to analyze the benefits and costs of the patent system in detail. To support my argument, this article briefly addresses how software is currently protected in Argentina.

Section II gives the reader an overview of the legal regime of software protection and point out its disadvantages. The section begins with a narrow interpretation of Argentine patent law in light of TRIPS and the Argentine Constitution to allow patentability of pure software. Section II then argues that software meets the patentability requirements as a field of technology by addressing the technical concept of software. Section II additionally analyzes several United States cases and EPO decisions on software as positive examples that could influence the interpretation of the Argentine legislation. Section III will suggest policy reasons in favor of patenting software and will consider some disadvantages of doing so by using the current software industry in Argentina as an example.

10. *See id.*

11. *See* INPI, Patentability Guidelines, *supra* note 3, ch. IV, ¶¶ 2.1, 2.1.3(a), app. VII (instructing APTO's examiners to examine patent applications regarding certain software related inventions).

Argentina in Brief

Argentina is an interesting market for software producers and it has great potential to develop its own software industry. Located in South America, Argentina's massive land mass makes it the eighth largest country in the world and the second largest in Latin America.¹² Roughly thirty-seven million people live in Argentina, the majority of whom live in its major cities.¹³ Although the economy is relatively diversified, its export economy is primarily based on soy, wheat and other grains, meat, and natural resources.¹⁴ Argentina also has manufacturing and food industries mostly located in its major urban centers (principally Buenos Aires).¹⁵ The professional and technical labor force in the urban centers is relatively highly educated;¹⁶ therefore Argentina has the potential to develop a lucrative software industry. However, Argentina is still a developing country that imports new technology primarily from the United States.¹⁷

In recent years and even during the two-year recession leading up to the 2001 crisis, Argentina has developed a local software industry aimed at particular segments of the domestic market.¹⁸ In particular, the local software companies enjoy advantages where knowledge of domestic law and regulations and local clients' business culture is needed (i.e., software designed for accounting and law firms).¹⁹

12. See DOING BUSINESS IN ARGENTINA, A.B.A.J. 111-16 (Andrew J. Markus & David E. Dubberly eds., 2000).

13. See generally Ronald Corbett, *The Judicial of Intellectual Property Rights in Argentina—Is Society Being Served?*, 10-WTR CURRENTS: INT'L TRADE L.J. 3 (2001) (discussing legal and sociological reasons for software piracy in Argentina such as inadequate enforcement and inefficiency of the judiciary).

14. See *id.* at 3-4.

15. See *id.*

16. See DOING BUSINESS IN ARGENTINA, *supra* note 12, at 112.

17. See Corbett, *supra* note 13, at 3-4.

18. See Daniel Chudnosky & Andres Lopez, U.N. Univ., World Inst. for Dev. Econ. Res. [UNU/WIDER], *The Software and Information Services Sector in Argentina: Pros and Cons of an Inward-Oriented Development Strategy*, Discussion Paper No. 2002/92 (Oct. 2002), at 1-5, 5 n.2, 12, 16-18, <http://www.wider.unu.edu/publications/dps/dps2002/dp2002-92.pdf> (analyzing from an economic perspective the software and information services industry in Argentina through 2002); see also Ministry of Econ. and Prod., Sec'y of Indus., Trade and of the Small and Medium Sized Enters., *Software and IT Services Forum: SITS Strategic Plan 2004-2014, Action Plan 2004, 2007* (Nov. 2003), at 48-49, 73, available at http://www.industria.gov.ar/foros/soft_inf/documentos/fssi_libro_ayb_en.pdf [hereinafter *Software and IT Services Forum*].

19. See Corbett, *supra* note 13, at 12-13, 17.

II. PROTECTION OF SOFTWARE IN ARGENTINA

Software piracy is a genuine problem in Argentina, not because of inadequate statutes, but because of a lack in enforcement and sociocultural influences.²⁰ Software is formally protected under copyright law, and it can be protected under trade secret law, contract law, and since 2003, patent law in specific circumstances.²¹ The accumulation of protections under different regimes is legally possible because each form of protection shields different intellectual creations or serves its own purposes.²² Also, the law does not forbid this sort of accumulation.²³

This section briefly addresses each form of protection and analyzes the current protection of software-related inventions (SRIs) under patent law. This is to introduce the reader to the basic forms of protection available and the scope and implications of the exclusion of software as patentable subject matter in Argentina. As argued, software in Argentina is formally protected, but by disallowing the patentability of pure computer programs, Argentina is not providing adequate formal protection in many cases.

It should be emphasized that protection of intellectual property in Argentina is a basic constitutional right. Article 17 of the Argentine Constitution provides that “[p]roperty is inviolable, and no inhabitant of the Nation can be deprived thereof except by virtue of a judgment supported by law. *Every author or inventor is the exclusive owner of his work, invention or discovery for the term granted him by law.*”²⁴ Based on that clause, the Argentine Federal Congress has enacted statutes protecting intellectual cre-

20. See *id.* at 6-10.

21. See Argentine Intellectual Property Law, *supra* note 8, arts. 1, 2, 9, 55bis; see also INPI, Patentability Guidelines, *supra* note 3, at ch. IV, ¶¶ 2.1, 2.1.3(a), app. VII; see generally Law No. 24.766, Dec. 30, 1996, B.O. 30/12/1996, available at <http://infoleg.mecon.gov.ar/infolegInternet/anexos/40000-44999/41094/norma.htm> [hereinafter Argentine Confidentiality Law] (addressing the Argentine intellectual property provisions that most directly or effectively protects software itself, other forms of protection may be applicable to software, although they are not in the scope of this work).

22. See TRIPS, *supra* note 5, arts. 10, 27 (explaining that TRIPS Article 27, ¶ 3(b) expressly allow members to protect plant varieties by a combination of patents and any other legal regimes). This is an example of how combinations of different IP law protections are sometimes allowed or desired depending on the subject matter of their protection.

23. See *id.*

24. CONST. ARG. art. 17 (1853), rev. 1994 (emphasis added).

ations including computer programs.²⁵

A. *Protection of Software Under Copyright Law*

As a member of the World Trade Organization (WTO), Argentina accepted the TRIPS Agreement in 1995.²⁶ Article 10 of TRIPS mandates that software be protected as literary works under the Berne Convention for the Protection of Literary and Artistic Works (Berne Convention).²⁷ Article 10 also provides for the protection of the particular selection or arrangement of the content of compilations of data.²⁸ Argentina ratified the Berne Convention in 1999 and since then has been a member of the World Intellectual Property Organization Copyright Treaty (WIPO Copyright Treaty),²⁹ which also provides for the protection of computer software as 'literary works' as defined by the Berne Convention.³⁰

Since 1998 (in accordance with its international obligations), Argentina has enacted legislation amending its copyright law to expressly include software as subject matter of copyright protection.³¹ Argentine copyright law provides civil and criminal remedies against infringers.³² Compilations of data and computer programs are protected either in source or object code.³³ The protection extends to the particular expression of the ideas, procedures, methods of operation, and mathematical concepts, but not to those ideas, procedures, methods, or concepts.³⁴ Nor does the scope of copyright protection extend to the functional aspects and behavior of a computer program.³⁵

25. See HORACIO FERNÁNDEZ DELPECH, *PROTECCIÓN JURÍDICA DEL SOFTWARE* 15 (2000).

26. Silvia Fabiana Faeman, *Argentina: The New Patent Law and The Agreement On Trade Related Aspects of Intellectual Property Rights (TRIPS)*, 8 SW. J. L. & TRADE AM. 157, 158-59 (discussing patent issues related to the implementation of TRIPS in Argentina).

27. See TRIPS, *supra* note 5, art. 10, at 324.

28. See *id.*

29. See DELPECH, *supra* note 25, at 18.

30. WIPO Copyright Treaty, Dec. 20, 1996, 36 I.L.M. 65, available at http://www.wipo.int/treaties/en/ip/wct/pdf/trtdocs_wo033.pdf.

31. See Law No. 25.036, Nov. 11, 1998, B.O. 11/11/98, *amending* Argentine Intellectual Property Law, *supra* note 8, available at <http://infoleg.mecon.gov.ar/infolegInternet/anexos/50000-54999/54178/norma.htm>.

32. See Argentine Intellectual Property Law, *supra* note 8, arts. 1, 4, 9, 55bis, 57,

33. See *id.* art. 1.

34. See *id.*

35. See *id.*

1. Rights Conferred to the Copyright Owner – Duration

Argentina has adopted the civil law system.³⁶ The law grants the author two types of rights in his work - moral rights and property rights.³⁷ If the author transfers his property rights to a third party he will still possess his moral rights.³⁸ However, in the software setting, unless provided otherwise, a company can own the copyrights on any computer program produced by a worker hired for the purpose of producing software.³⁹ The copyright owner has broad property rights.⁴⁰ The rights of the copyright owner include, but are not limited to, the right to make copies and exclude others from making copies of a computer program without his authorization.⁴¹ The software developer can authorize the use, rental, and distribution of his intellectual property rights to a third party.⁴² He can also authorize or exclude others from making derivative works or adaptations of the computer program.⁴³

The duration of the copyright term for a company is fifty years from the time the software is made available to the public.⁴⁴ Individual authors will enjoy their rights during their entire lives and the property rights will be transferred to their heirs, who in turn will enjoy those rights for at least seventy years.⁴⁵

2. Exemptions to the Rights Conferred

Argentine copyright law provides only narrow exemptions, as Article 10 only provides exemptions for educational or scientific purposes.⁴⁶ Even in those cases there are limitations on how many words can be used (no more than one-thousand).⁴⁷ In addition, those words cannot be a substantial part of the new work.⁴⁸ It is not clear how this exception applies in the software setting, but it

36. *See generally* Corbett, *supra* note 13, at 5.

37. *See* JAVIER FERNANDO NÚÑEZ, *DERECHOS INTELECTUALES* 24-25, 28 (2004).

38. *See id.*

39. *See* DELPECH, *supra* note 25, at 21; *see also* NÚÑEZ, *supra* note 37, at 32.

40. *See* Argentine Intellectual Property Law, *supra* note 8, arts. 2, 55*bis*; *see also* NÚÑEZ, *supra* note 37, at 24-27, 119-20 (discussing that the word 'dispose' contained in Article 2 is a civil law property concept that provides very broad rights to the copyright owner).

41. *See generally* Argentine Intellectual Property Law, *supra* note 8.

42. *See id.*

43. *See id.*

44. *See id.* art. 8.

45. *See id.* art. 5.

46. *See id.* art. 10, at 324.

47. *See id.*

48. *See id.*

seems that it will be difficult to make a case in favor of permitting reverse engineering for commercial purposes.⁴⁹ Article 9 allows licensees to make only one backup copy of the original software just for safety reasons.⁵⁰ Thus domestic copies for personal use are not considered exceptions or 'fair use' and can be regarded as a criminal offense.⁵¹

3. Registration and Remedies

Software can be registered at the Argentine Copyright Office⁵² before it is available to the public.⁵³ Once the software is made released to the public, its registration is mandatory for Argentine nationals.⁵⁴ The registration process is performed through the Information Technology Companies Chamber of Argentina (CESSI).⁵⁵

Registration in most cases is not mandatory for foreign nationals.⁵⁶ Nevertheless, it is very useful to do so⁵⁷ because the registration certificate is an administrative document and therefore has a presumption of validity.⁵⁸ The certification document can be used as strong evidence in court (i.e., to establish the official and uncontested date of the work or to establish with cer-

49. See *id.*; see also Tyler G. Newby, *What's Fair Here Is Not Fair Everywhere: Does the American Fair Use Doctrine Violate International Copyright Law?*, 51 STAN. L. REV. 1633, 1643 (1999) (providing an English translation of Article 10 and arguing that Argentine law is extremely restrictive regarding fair use); NÚÑEZ, *supra* note 37, at 39-41.

50. See Argentine Intellectual Property Law, *supra* note 8, art. 9.

51. See NÚÑEZ, *supra* note 37, at 39; see also DELPECH, *supra* note 25, at 37-39.

52. Dirección Nacional de Derecho de Autor, <http://www.derautor.gov.co/html/Home.asp> (last visited Jan. 23, 2007) [hereinafter Argentine Copyright Office]; see also Argentine Copyright Office, <http://www2.jus.gov.ar/minjus/ssjyal/Autor/default.htm> (last visited Jan. 23, 2007) (providing additional information about the governmental agency).

53. DELPECH, *supra* note 25, at 22-25.

54. Argentine Intellectual Property Law, *supra* note 8, art. 61.

55. Argentine Copyright Office, *supra* note 52, <http://www2.jus.gov.ar/minjus/ssjyal/Autor/entes.htm> (last visited Jan. 23, 2007); see also Cámara de Empresas de Tecnologías de Información de Argentina [Chamber for Information Technology Companies in Argentina], http://www.cessi.org.ar/main_en.htm [hereinafter CESSI] (providing additional information about CESSI).

56. Argentine Intellectual Property Law, *supra* note 8, art. 14; see also NÚÑEZ, *supra* note 37, at 46-50, 140-41.

57. See *id.*

58. Law No. 19.549, art. 12, Apr. 27, 1972, B.O. 27/4/1972, available at <http://infoleg.mecon.gov.ar/infolegInternet/anexos/20000-24999/22363/texact.htm> [hereinafter Argentine Law on Administrative Procedures].

tainty the identity of the copyright holder).⁵⁹ The certificate can also be used to show a probability of success on the merits in order to obtain preliminary injunctions⁶⁰ and to compare the alleged infringing copy with the original one in order to obtain injunctions or damages.⁶¹ It is also useful to register software license contracts in order to obtain tax deductions.⁶²

In general, criminal and tort liability can arise if unauthorized copies of software are made by any means.⁶³ Under Argentine copyright law there is no fixation requirement.⁶⁴ The definition of 'copy' is broad and even a reproduction of software in the RAM memory, if not authorized, is enough to trigger liability.⁶⁵ Nevertheless, criminal enforcement is far from effective and, as mentioned *supra*, software piracy is a serious problem in Argentina.⁶⁶

Civil remedies can be more effective. These include preliminary injunctions, damages, and permanent injunctions.⁶⁷ The copyright owner can seek to obtain preliminary injunctions to prevent the importation or exportation of merchandise that violates his intellectual property rights.⁶⁸

To conclude, Argentine copyright protection, when enforced, could be fairly effective against illegal reproduction of software. However, the law only protects the specific expression of the computer software.⁶⁹ The idea itself and the functional aspects of the software are not formally protected under copyright law and therefore such protection is not enough.⁷⁰

59. Argentine Copyright Office, *supra* note 52, at <http://www2.jus.gov.ar/minjus/ssjyal/Autor/Beneficios.htm> (last visited Jan. 23, 2007).

60. See Argentine Law on Administrative Procedures, *supra* note 58, art. 12.

61. See DELPECH, *supra* note 25, at 22-23; NÚÑEZ, *supra* note 37, at 45-50, 139-140.

62. See Alfredo L. Rovira, *Foreign Investment and Transfer of Technology, in DOING BUSINESS IN ARGENTINA*, *supra* note 12, at 30.

63. Argentine Intellectual Property Law, *supra* note 8, arts. 71, 80.

64. Guillermo Cabanellas, *Law of the Internet in Argentina*, 34 U. MIAMI INTER-AM. L. REV. 247, 270 (2002).

65. See *id.*

66. See Corbett, *supra* note 13, at 3, 12-14.

67. See Argentine Intellectual Property Law, *supra* note 8, art. 79; TRIPS, *supra* note 5, art. 50; NÚÑEZ, *supra* note 37, at 173-76.

68. Law No. 25.986, art. 46, Jan. 5, 2005, B.O. 05/01/05, available at <http://infoleg.mecon.gov.ar/infolegInternet/anexos/100000-104999/102592/texact.htm> [hereinafter Argentine Customs Law].

69. See Argentine Intellectual Property Law, *supra* note 8, art. 1.

70. See *id.*

B. *Protection of Software Under Trade Secret Law*

Software can be protected as a trade secret.⁷¹ Argentine confidentiality law reproduces Article 39 of TRIPS.⁷² Therefore, the law recognizes that any person can prevent “information lawfully within their control, from being disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices.”⁷³

To be protected under the law, undisclosed software code must meet certain conditions. It must be secret (not generally known or easily accessible for those who usually use, produce, understand or write software),⁷⁴ the information must have commercial value for being secret, and it must have been subject to reasonable measures to keep it secret by the person that has control over it.⁷⁵

A software license may contain a confidentiality agreement. That way, if the licensee gains unauthorized access to the code or discloses it without authorization, the law presumes that the secret information (the software code) was obtained against honest commercial practices (obtained through breach of contract, breach of confidence, or inducement to breach).⁷⁶ Also, the law presumes that the undisclosed information was unlawfully obtained when it was acquired from third parties who knew, or were grossly negligent, in failing to know that the code was a trade secret.⁷⁷

In the software setting, the law emphasizes that undisclosed information included in electronic or magnetic means (CDs, microfilms, videos or any similar means, RAM memory or the like) is also protected.⁷⁸ The Argentine confidentiality law can be enforced in a civil action context by obtaining preliminary injunctions and permanent injunctions.⁷⁹ Trade Secrets are protected under criminal law,⁸⁰ and also by civil penalties such as

71. Argentine Confidentiality Law, *supra* note 21, art. 1.

72. *See id.*; *see also* TRIPS, *supra* note 5, art. 39.

73. Argentine Confidentiality Law, *supra* note 21, art. 1.

74. *Id.*

75. *Id.*

76. *Id.*

77. *Id.*

78. *Id.* art. 2.

79. *Id.* art. 11.

80. *See* Juan Martin Arocena, *Argentine Legislation on e-Commerce*, 15-SPG INT'L L. PRACTICUM 36, 40 (2002).

damages.⁸¹

In sum, Argentine confidentiality law is broad enough to include software code. However, this form of protection is uncertain. There are precise requisites that must be fulfilled to consider software as a trade secret. In addition, any person who obtains the code by honest means or writes software that performs the same function with a different language does not violate the law.⁸² Therefore, the functionality of the computer software is not entirely protected under this regime.

C. *Protection of Software Under Contract Law*

Argentine copyright law specifically provides that the copyright owner has the right to license the usage or reproduction of its computer software to a third party.⁸³ The provision does not include any limits to licensing practices. However, liability under the Argentine antitrust law may arise if a license restrains competition, has adverse effects on the dissemination of technology, or impedes market access.⁸⁴ TRIPS has expressly authorized members to specify in which cases contracts or license practices could constitute an abuse of intellectual property.⁸⁵ Measures taken by countries to prevent such practices could include the enactment of laws and regulations that challenge the validity of coercive package licensing.⁸⁶

According to Argentine antitrust law, any act or conduct against public economic interest related to the production or distribution of goods or services that has the effect or purpose of restricting competition or access to a particular market is illegal.⁸⁷ The law provides some examples of which practices restrain competition, including agreements that limit, restrict, or control technological development. It also includes agreements that provide for horizontal allocation of markets, tie agreements, etc.⁸⁸

Many software licenses are package licenses or shrink-wrap

81. *Id.*

82. Argentine Confidentiality Law, *supra* note 21, art. 1.

83. Argentine Intellectual Property Law, *supra* note 8, art. 55*bis*.

84. Law No. 25.156, arts. 1, 2(h), Sept. 29, 1999, B.O. 05/04/01, available at <http://infoleg.mecon.gov.ar/infolegInternet/anexos/60000-64999/60016/texact.htm> [hereinafter Argentine Protection of Competition National Decree].

85. TRIPS, *supra* note 5, art. 40.

86. *See id.* However, Argentina has not enacted any express legislation on the subject of package licensing.

87. Argentine Protection of Competition National Decree, *supra* note 84, art. 1.

88. *Id.* arts. 1, 2.

agreements.⁸⁹ A license could also be entered electronically (click-wraps or browse wraps agreements) when, for example, the software is downloaded from the Internet.⁹⁰ Many terms of these licenses may prove to be difficult to enforce, especially as far as consumers are concerned. For instance, Argentine consumer law imposes a three-month mandatory warranty provision (although it is not clear if it is applicable to software).⁹¹ Also, a consumer may have five days to refuse the terms of some electronic contracts.⁹²

Generally, contracts require a written signature and must be entered in writing.⁹³ Nevertheless, current digital signature law also recognizes electronic documents, digital signatures, and electronic signatures.⁹⁴ If a contract lacks these formalities, it is not unenforceable,⁹⁵ and the contractual provisions must be proven by other means.⁹⁶ The burden of proof lies with the party asserting the existence of the contract.⁹⁷

Contracts that protect software usually limit the rights on reverse engineering, exhaustion, and reproduction.⁹⁸ If these con-

89. See generally Anthony Mahajan, *Intellectual Property, Contracts, and Reverse Engineering after PROCD: A Proposed Compromise For Computer Software*, 67 FORDHAM L. REV. 3297, 3309-10 (1999); John A. Rothchild, *The Incredible Shrinking First-Sale Rule: Are Software Resale Limits Lawful?*, 57 RUTGERS L. REV. 1, 2-8 (2004).

90. See Rothchild, *supra* note 89, at 98-99, 103 (discussing some effects of 'clickwrap' agreements).

91. Law 24.240, Sept. 22, 1993, B.O. 15/X/93, as modified by Law 24.999, art. 11, July 30, 1998, B.O. 30/07/98, available at <http://infoleg.mecon.gov.ar/infolegInternet/anexos/0-4999/638/texact.htm> [hereinafter Argentine Consumer Defense Law]. However, it can be argued that computer programs are not tangible objects, but intangible goods, and therefore Argentine Consumer Defense Law, ch. IV, arts. 11-18, are not applicable.

92. See *id.* art. 34; see also Arocena, *supra* note 80, at 37; Cabanellas, *supra* note 64, at 258-59 (noting, however, that certain electronic contracts are not included in this provision, especially those in which offer, acceptance, and performance are instantaneous (such as in the download example)).

93. Cabanellas, *supra* note 64, at 249-50, 253-54.

94. Law No. 25.506, Dec. 14, 2001, B.O. 14/12/01 [hereinafter Argentine Digital Signature Law] (recognizing electronic documents, digital signatures, and electronic signatures and providing for a rebuttable presumption in favor of the user of a digital signature); see also Cabanellas, *supra* note 64, at 253-60 (noting that electronic signatures—those signatures lacking one or more elements to qualify as a digital signature—do not have any presumption of validity and have to be proved when contested).

95. Cabanellas, *supra* note 64, at 253.

96. See *id.*

97. See Arocena, *supra* note 80, at 37.

98. See Mahajan, *supra* note 89, at 3319-23, 3330-31 (discussing the consequences of extending protection over computer programs beyond federal laws by means of

tracts are enforceable, they could be very effective tools to protect computer programs. However, in Argentina enforceability of all the provisions contained in shrink-wrap agreements and electronic contracts is uncertain. Courts may tend to favor consumers against abusive terms or restrictions. Enforcement of these contracts protecting software is not impossible but is uncertain. Conversely, contracts do not protect the developer against third parties (parties not contractually bound) imitating the computer program using a different code or clean reverse engineering.⁹⁹ Therefore, protection by contract might be an important tool to protect a computer program as far as licensees and consumers are concerned, but it does not protect against certain forms of imitation from competitors.

D. Protection of Software Under Patent Law

Currently the APTO is accepting applications on software-related inventions.¹⁰⁰ In general, patent law provides that any invention on products or processes is patentable.¹⁰¹ The statute defines "invention" broadly as "any human creation that allows for the transformation of energy or mass for the use or advantage of mankind."¹⁰² According to this definition, anything made by man can be an invention. However, the law also requires that the invention meet the novelty, inventive step (non-obviousness), and industrial application (somehow similar to utility) requirements, explained as follows.¹⁰³

Novelty: The invention must not be in the state of the art. To be new, the invention must not have been made available to the public by any person and by any means before the filing date of the patent application or its Paris Convention priority date.¹⁰⁴ In general, the novelty is destroyed if the invention is made available to the public by any means and by any person (including but not limited to any written or oral description of the invention, use, sale and offer for sale in Argentina or anywhere in the world).¹⁰⁵

private contracts); see also Rothchild, *supra* note 89, at 3-8, 22-40 (arguing that software contracts that restrict distribution of copies are unenforceable and also analyzing usual software license contractual restrictions and the First Sale Doctrine).

99. See Mahajan, *supra* note 89, at 3318-19.

100. INPI, Patentability Guidelines, *supra* note 3, pt. C, ch. IV, app. VII.

101. Argentine Patent Law, *supra* note 1, arts. 1, 4.

102. *Id.* art. 4(a).

103. *Id.* art. 4.

104. *Id.*

105. Nevertheless there is an exemption to that rule which involves a disclosure of the invention by the inventor himself in certain cases. The exemption is applicable if

Inventive Step (non-obviousness): An invention must not be obvious to a person skilled in the art.¹⁰⁶ This is a difficult test since what is obvious will depend on the patent examiner and the definition of a person skilled in the art.¹⁰⁷

Industrial Application (similar to utility): An invention is susceptible to industrial application when the object of the invention can achieve an *industrial product, result, or concrete process*.¹⁰⁸ Industry is broadly defined as any kind of commercial activity, including agriculture, the exploitation of natural resources, manufacturing industries, and services.¹⁰⁹ This requirement is particularly important with regard to software. Some Argentine commentators and the APTO do not consider software to fit the definition of an industrial application.¹¹⁰ Arguably, the definition of invention and industrial application is broad enough so as to include computer programs.¹¹¹ As set forth in section II, pure software can be considered an 'industrial product,' a device that can achieve a result, or a concrete process in an industrial activity (broadly defined by law as any economic activity).¹¹²

The APTO also requires the invention to have a technical character.¹¹³ This vague requirement that seems to refer to machines or industrial processes, although this is not explicitly clear. The legality of this requirement is doubtful because the law does not expressly require or define 'technical field.'¹¹⁴ The APTO and commentators in general agree that pure software does not

the disclosure took place within one year before the filing of the patent application in Argentina or its Paris Convention priority date. *See id.*

106. *Id.* art. 4.

107. *Id.*

108. *Id.*

109. *Id.*; Salvador D. Bergel, *Requisitos y Excepciones a la Patentabilidad. Invenciones Biotecnológicas*, in CARLOS CORREA ET AL., DERECHO DE PATENTES 22-23 (1996); GUILLERMO CABANELLAS, I DERECHO DE LAS PATENTES DE INVENCION 777 (2001).

110. *See* Bergel, *supra* note 109, at 30.

111. *See* Argentine Patent Law, *supra* note 1, arts. 1, 4.

112. *See id.*

113. *See* INPI, Patentability Guidelines, *supra* note 3, pt. C, ch. IV.

114. *See* Argentine Patent Law, *supra* note 1, art. 12. In Argentina the patent application must contain a *technical* description of the invention and a description of the *technical field*. Article 12 provides for a formal requirement regarding a patent application. Article 12 is not a substantive patentability provision. However, the INPI Patentability Guidelines have construed this article as providing that the invention must be in the 'technical field.' *See also* INPI, Patentability Guidelines, *supra* note 3, pt. C, ch. IV, at 44. In Europe the term technical field has been expanded to the extent that today includes pure software patents. *See* Case T-0935/97-3.5.1, Int'l Bus. Mach. Corp., Bd. of Appeal of the EPO, ¶ 9-10 (Feb. 4, 1999), available at <http://legal.european-patent-office.org/dg3/pdf/t970935eu1.pdf>.

meet this requirement.¹¹⁵ Nevertheless, computer programs can meet this requirement if the concept of technical character is expanded. In fact the EPO has expanded the concept so as to include pure software.¹¹⁶

Disclosure: The invention must be disclosed so as to enable a person skilled in the art to entirely reproduce it.¹¹⁷ However, there is no requirement to disclose the source code.¹¹⁸

1. Software Excluded From Patentability

Despite Argentine patent law's broad definitions of invention and industrial application, it expressly excludes 'computer programs' from patentability because they are not considered 'inventions'.¹¹⁹ Literally construed, the law has expressly excluded computer programs from patentability without any exemptions. Since 2001, however, some commentators have suggested that the law be broadly interpreted or changed so as to allow for patentability of certain SRIs.¹²⁰

In 2003, the APTO instructed its examiners to allow patentability of certain SRIs.¹²¹ This instruction, however, expressly excludes the patentability of pure software or where software is claimed as working in a known computer.¹²² This somehow flexible interpretation of the statute is certainly an advance in the right direction, however it is not enough to fully protect software under patent law.

Another interesting point about the Guidelines is that they are only general instructions directed to APTO's examiners, who, in narrow circumstances, could decide to not follow them.¹²³ Furthermore, the Guidelines are not a legal instrument that can mod-

115. INPI, Patentability Guidelines, *supra* note 3, pt. C, ch. IV, ¶ 2.1.3(a), at 47.

116. See Case T-0935/97-3.5.1, Int'l Bus. Mach. Corp., Bd. of Appeal of the EPO, ¶ 9-10 (Feb. 4, 1999), available at <http://legal.european-patent-office.org/dg3/pdf/t970935eu1.pdf>. This topic will be addressed *infra* in Part II.

117. Argentine Patent Law, *supra* note 1, art. 20.

118. See *id.* (stating that there is no express provision in the Argentine Patent Law, which requires applicants to disclose the source code).

119. See *id.* art. 6 (excluding computer programs as well as business methods, medical treatment methods, etc.).

120. See CABANELLAS, DERECHO DE LAS PATENTES, *supra* note 109, at 813-19 (arguing that when a computer program is part of a larger invention, such invention should not be denied patentability).

121. See INPI, Patentability Guidelines, *supra* note 3, pt. C, ch. IV, ¶¶ 2.1, 2.1.3(a), app. VII, at 44, 45, 47, 48, 149-52.

122. See *id.* pt. C, ch. IV, ¶ 2.1.3(a), at 47.

123. See *id.* ¶ 1.1.

ify or preempt patent law and they can change at any time.¹²⁴ It will be up to federal courts to enforce patents for SRIs if they are ever issued and litigated.

2. Patentability of Software Related Inventions

As mentioned, the Guidelines provide that software can be patented if it is part of a broader invention (e.g., an industrial process controlled by software). Computer programs that control machines are patentable.¹²⁵ If the computer program is designed to control a known computer it will be patentable only if it provides for a technical effect.¹²⁶

The APTO requires a technical effect when analyzing software patentability. The meaning of technical effect seems to be that as long as the software has some effect on a machine, a piece of hardware, or in an industrial process, it can be patented.¹²⁷ Once the technical effect is determined, the software-related invention needs to also meet the inventive step and novelty requirements.¹²⁸

According to the Guidelines, the following SRIs are presumed to have a technical effect and therefore are patentable subjects:¹²⁹

1) SRIs related to physical data processing, which applies only if the data represents images, parameters, or control values *in an industrial process*;¹³⁰ 2) software related to methods or processes which affect the way a computer works (e.g., modifications to an operating system, software that will increase the amount of memory, speed or security of the computer);¹³¹ 3) software related to methods or processes the structure of which is based on considerations on how a computer works (conversely, if the software is based on how the financial market works it is not patentable);¹³² and 4) software that provides a technical solution to an activity that cannot be performed by human beings (e.g., when the intervention of individuals is not possible for confidentiality reasons).¹³³

124. *See id.*

125. *Id.* pt. C, ch. IV, ¶ 2.1.3(a), at 47; *see also id.* app. VII, ¶ 5, at 147, 149-52.

126. *Id.*

127. *Id.*

128. *Id.*

129. *Id.*

130. *Id.* Financial or economic figures or mere text data are not considered physical data. For example, word processor software or computer translation programs are not patentable. *See id.*

131. *Id.*

132. *Id.*

133. *Id.* pt. C, app. VII, ¶ 5, at 151. The APTO in this particular case seems to

The Guidelines establish two basic principles regarding patentability of software programs: 1) even if the idea behind the invention is a mathematic method and the claim is drafted to cover a technical process, the claim will not be presumed to seek protection for the mathematic method,¹³⁴ and 2) a claim regarding a technical process controlled by a computer program will not be presumed to seek protection of the computer software.¹³⁵

In brief, software controlling a machine or a method performed by a machine, or controlling a technical process or an industrial process, is presumed to have a technical effect and therefore can be patented.¹³⁶ Additionally, the APTO seems to accept that some business methods controlled by software (if they cannot be performed by humans) are patentable subject matter.¹³⁷

The protection of SRI is an important advance, although many software inventions are left behind. The patents will not protect pure software; they will protect the software in combination with the specific processes, methods, or machines.¹³⁸ Many kinds of computer programs are expressly not considered inventions.¹³⁹ Protection of software has been left to the crafty pen of the patent attorney who may accommodate the claims to include pure software in the vague and contradictory definitions contained in the Guidelines. A substantial amount of litigation is therefore expected. Not only will there be SRI patent-validity challenges based on that the APTO went beyond its limits when regulating its patentability, but there will also be litigation against the APTO regarding rejection of software inventions based on the contradictory language.

As argued in next section, the APTO should not exclude pure software from patentability. The exclusion contained in the law must be narrowly construed to be consistent with TRIPS. The law so interpreted should allow patentability of software when it is new, when it meets the inventive step requirement, and when it has industrial application. The APTO should dispose of the vague

accept the patentability of certain business methods when they can only be executed through computer programs and not by individuals (for example when the intervention of individuals is not possible for confidentiality reasons). In such cases the computer program provides a technical solution to a problem (the problem being the impossibility of human intervention in the activity or process).

134. *Id.* at 149-52.

135. *Id.*

136. *Id.*

137. *Id.*

138. *Id.*

139. *Id.*

technical effect requirement or sufficiently expand the term so as to include pure software like the EPO did in 1999.¹⁴⁰

III. THE TRIPS AGREEMENT AND THE EXCLUSION OF SOFTWARE AS PATENT SUBJECT MATTER IN ARGENTINA

This section will first analyze the reasons for excluding pure software as patent subject matter given by Argentine commentators and the APTO. There is no specific caselaw on the subject and the law simply excludes ‘computer programs’ because they are not considered ‘inventions.’¹⁴¹ Next, this section will analyze those reasons in light of the relation between the non-discrimination and the exclusion of invention clauses of TRIPS. It will also analyze how TRIPS influences the interpretation of the exclusion of software as patentable subject matter under Argentine law. Lastly, this section will argue that software itself can be a machine or device that can have an effect in the industry (defined broadly as including any economic activity, including the service industry) and therefore as long as it is also new and non-obvious pure software is patentable in Argentina.¹⁴²

A. *Scope of the Exclusion of Software as Patentable Subject Matter – Reasons*

1. Software is Not Regarded an Invention

Some Argentine commentators argue that computer programs cannot be considered inventions because they do not meet the “industrial application” requirement.¹⁴³ Computer programs are considered to be a mere intellectual creation based on a mathematical method or formula.¹⁴⁴ Salvador Bergel argues that an invention must be industrial. However, he also maintains that industry can be regarded as any economic activity.¹⁴⁵ Nevertheless, according to Bergel, an industrial invention requires a physi-

140. See Case T-0935/97-3.5.1, Int’l Bus. Mach. Corp., Bd. of Appeal of the EPO, ¶ 9-10 (Feb. 4, 1999), available at <http://legal.european-patent-office.org/dg3/pdf/t970935eu1.pdf> (setting aside the decision of the Examining Division of the European Patent Office posted June 18, 1997, which refused European patent application No. 96 305 851.6 pursuant to Article 97(1) EPC, because of “the fact that a computer program product is not so excluded under all circumstances”).

141. Argentine Patent Law, *supra* note 1, art. 6.

142. *Id.* arts. 1, 4.

143. See Bergel, *supra* note 109, at 28-30.

144. *Id.*

145. *Id.* at 22-23.

cal, tangible result.¹⁴⁶ Thus, a computer program is not a material object and is therefore not patentable.¹⁴⁷ Conversely, as new technologies evolve they require flexible legal concepts. Patent law should be technologically neutral so as to adequately serve its purpose (to protect the inventor's rights in the Argentine case¹⁴⁸ and to promote innovation). To require an invention to be manifested in a physical object is equivalent to granting patents on last-millennium technologies only. If one of the purposes of patents is to encourage new developments, patenting only old technology does not seem logical.

Carlos Correa, in a similar approach, argues that granting patents on software is not an obligation under TRIPS.¹⁴⁹ Correa argues that because the agreement does not define 'invention,' countries can exclude software from patentability by narrowing the scope of this concept.¹⁵⁰ Note, however, that this interpretation of TRIPS allows for the exclusion of any technical field as long as we define 'invention' narrowly. Such an interpretation will conflict with Article 27 of TRIPS.¹⁵¹

2. Software is an Invention, But it Was Excluded

Pablo Wegbrait argues that it is fair that computer programs in certain cases be protected under patent law; however, the law has expressly excluded them. Although unfair, he believes such exclusion is consistent with TRIPS Article 10.¹⁵² According to Wegbrait, it would be proper to amend the law and allow patents on software when they have a "technical effect." Pure software patents could still be excluded.¹⁵³

Arguably, patenting pure software will depend on how we define or construe 'technical effect.' This concept has been taken from the EPO, which since 1999 has expanded the concept so as to include pure software patents.¹⁵⁴ Pure software can be distinguished from the concept of software. Software is the code itself

146. *See id.* at 22-29.

147. *Id.* at 23, 24, 29.

148. CONST. ARG. art. 17 (1853), rev. 1994; *see also* Argentine Patent Law, *supra* note 1, art. 1.

149. CARLOS M. CORREA, INTELLECTUAL PROPERTY RIGHTS, THE WTO, AND DEVELOPING COUNTRIES. THE TRIPS AGREEMENT AND POLICY OPTIONS 152-53 (2000).

150. *Id.*

151. TRIPS, *supra* note 5, art. 27, at 331.

152. Pablo Wegbrait, *La Patentabilidad de los Programas de Computación* [The Patentability of Software], in 2002-F L.L. 1400, 1405 (Arg.).

153. *Id.*

154. *See* Bergel, *supra* note 109, at 14, 18, 20, 25, 31-32.

(source code or object code), which is protected under copyright.¹⁵⁵ But computer software also behaves.¹⁵⁶ Therefore, a pure computer invention may be claimed as a process or as an article of manufacture by itself (in a CD for example), but its functionality (what it does when it is executed in a computer) is what should matter, not how it is claimed.

3. Software Can Be Patented as Part of a Larger Invention

Guillermo Cabanellas has argued that TRIPS does not foreclose the possibility of granting patents on software, but he considers Argentine law to have excluded its patentability based on an implicit authorization given by TRIPS (which requires that software should be protected under copyright law).¹⁵⁷ According to Cabanellas, patentability of software should be allowed when it is used in complex technologies or inventions that have industrial application.¹⁵⁸

The APTO has partially adopted this view and has expressly instructed its examiners to narrowly construe any exclusion of patentability as limited to the object.¹⁵⁹ For example, software claimed in a computer readable medium is excluded because according to the APTO it is only a computer program.¹⁶⁰ Therefore the APTO excludes from patentability software as an article of manufacture when it is claimed in a computer readable medium regardless of its content, but allows its patentability when it is claimed as part of a new machine.¹⁶¹

Software as such and pure software patents are synonyms according to the APTO, but they do not necessarily need to be regarded as the same concept. When software is claimed in a computer readable medium what is claimed is not mere code or text. What the computer program does when executed in a computer or machine is what matters. The concept of technical effect has

155. See Aaron Charfoos, *How Far Have We Come, and Where Do We Go from Here: The Status of Global Computer Software Protection under the Trips Agreement*, 22 Nw. J. INT'L L. & BUS. 261, 271-275 (2002).

156. See *id.*

157. See CABANELLAS, DERECHO DE LAS PATENTES, *supra* note 109, at 813.

158. See *id.*; see also Cabanellas, *supra* note 64, at 267-68.

159. INPI, Patentability Guidelines, *supra* note 3, pt. C, ch. IV, ¶2, at 44-45.

160. See *id.* However, if the computer program is claimed in combination with a computer or machine, and it causes the computer or machine to work differently from a technical point of view, then the software is patentable. See *id.*

161. See *id.* ¶ 2.1.3(a).

evolved in the EPO so as to encompass pure software patents.¹⁶² This is particularly important considering that Argentine patent law and the APTO Guidelines are influenced by their counterparts, the European Patent Convention (EPC), and the EPO Guidelines.¹⁶³

The rationale for excluding pure software from patentability according to the APTO is that software, like a literary work, is not an invention.¹⁶⁴ Software is just an intellectual, theoretical, or mental activity.¹⁶⁵ According to the Guidelines, a word processor or translator program represents a "task that can be mentally performed by a person."¹⁶⁶ This rationale is a good example of the misconception regarding software and the doctrine of mental steps.

Using the same example used by the APTO, one can argue that word processors are not mental steps or tasks that can be mentally performed by a person. Word processors are computer programs that instruct a machine to create a 'metaphor of paper.'¹⁶⁷ In that 'paper' the user can perform many tasks such as corrections, deleting, saving, cutting, and pasting.¹⁶⁸ The program makes text easy to erase and modify without reconstructing the whole document.¹⁶⁹ Therefore, word processors are more than just a series of mental steps; they make writing and modifying documents easier and faster for the human user.

This innovative metaphor of paper has a valuable concrete effect for the user, which eventually will print a document producing an effect in the physical world. A word processor is a valuable tool, not just a series of mental steps. These very valuable computer programs that can create a virtual environment or metaphor to organize users' tasks should be adequately protected and not be left behind.¹⁷⁰

Argentine law asserts that any software that does not have a 'technical effect' is excluded from patentability.¹⁷¹ By technical

162. See Case T-0935/97-3.5.1, Int'l Bus. Mach. Corp., Bd. of Appeal of the EPO, ¶ 9-10 (Feb. 4, 1999), available at <http://legal.european-patent-office.org/dg3/pdf/t970935eu1.pdf>.

163. See Bergel, *supra* note 109, at 14, 18, 20, 25, 31-32.

164. INPI, Patentability Guidelines, *supra* note 3, pt. C, app. VII, at 149-52.

165. *Id.*

166. *Id.*

167. See Samuelson, *supra* note 9, at 2324-25.

168. *Id.*

169. *Id.*

170. *Id.* at 2325-26.

171. INPI, Patentability Guidelines, *supra* note 3, pt. C, app. VII, at 149-52.

effect the APTO seems to mean software that has an effect on a machine or a process of manufacture or on a tangible product.¹⁷² As noted *supra*, the reasons for excluding pure software in Argentina are diverse, but are arguably all based on a misconception of or a disagreement over what is a computer program.

Additionally, the APTO should expand the concept of technical effect and industrial application to encompass pure software regardless of how it is claimed (e.g., when claimed as article of manufacture or as a process). To do so the exclusion of software contained in Argentine patent law should be narrowly construed in light of TRIPS and the Argentine Constitution. The relevant caselaw and experience of the United States and particularly those of the EPO should also serve as an example. The APTO should consider computer software as a machine or device that has a concrete effect or the potential to have an effect in any economic activity (industrial activity). The APTO should not create a different concept of invention or set forth new patentability standards only applicable to software. That is a discrimination that cannot be accepted under TRIPS.¹⁷³ Even though TRIPS does not define 'invention,' Argentine law has¹⁷⁴ and its definition is broad enough to include software.¹⁷⁵ The rationale for excluding software from patentability is arguably based on a misunderstanding of the nature of software.

B. The Nondiscrimination Clause and Exclusion of Inventions Under TRIPS

As mentioned earlier, the Argentine Constitution provides that every inventor is the *exclusive owner* of his work.¹⁷⁶ However, the Constitution does not specify the type of protection to be assigned. Arguably, if software is protected under copyright law the constitutional requirement is duly satisfied. Conversely, it could also be argued that copyright protection is not enough; what is protected under copyright is the particular expression of the code.¹⁷⁷ The behavior of the computer program is not adequately protected under copyright, and it can be appropriated by anybody.¹⁷⁸ Therefore, although it may be contrary to the Constitu-

172. *Id.*

173. See TRIPS, *supra* note 5, art. 27, at 331.

174. Argentine Patent Law, *supra* note 1, art. 1.

175. *Id.*

176. CONST. ARG. art. 17 (1853), rev. 1994.

177. See Argentine Intellectual Property Law, *supra* note 8, art. 1.

178. *Id.*

tion, the software developer is not the exclusive owner of his entire work.¹⁷⁹

Furthermore, Congress decided to protect inventions under patent law as long as those inventions meet certain requirements.¹⁸⁰ As argued in this section, software as a field of technology can perfectly match any of those standards. In Argentina, international treaties, such as TRIPS, preempt federal law.¹⁸¹ Therefore any provision of patent law that does not conform to TRIPS will be preempted. For example, the Supreme Court of Argentina in *Pfizer, Inc. v. Instituto Nacional de la Propiedad Industrial* expressly decided that TRIPS preempted federal and provincial laws and was directly operational when the scope of its provisions was clear.¹⁸² Thus determining the scope of the non-discrimination clause of TRIPS and its interaction with Argentine patent law is key when considering patentability of software in Argentina.

1. Software and TRIPS

A large portion of the doctrine does not consider patentability of software as an obligation under TRIPS.¹⁸³ Many countries advocate for the exclusion. Argentina and Brazil have argued that TRIPS protects software as literary works¹⁸⁴ and therefore it is not patentable subject matter.¹⁸⁵ Nevertheless, TRIPS does not expressly exclude software as patentable subject matter. On the contrary, TRIPS only provides for the minimum protection of the software code as copyright allowing software to be also patentable subject matter.¹⁸⁶ Others argue that TRIPS by itself does not resolve the question.¹⁸⁷ The language in Article 27 allows countries to decide if pure software is patentable or not.¹⁸⁸ As stated *supra*, even though TRIPS does not define the term 'invention,'

179. CONST. ARG. art. 17 (1853), rev. 1994.

180. Argentine Patent Law, *supra* note 1, arts. 1, 4.

181. CONST. ARG. arts. 31, 75, § 22 (1853), rev. 1994 ("Treaties and concordats have higher standing than laws.").

182. Corte Suprema de Justicia [CSJN] [Supreme Court of Argentina], 21/05/2002, "*Pfizer Inc. v. Instituto Nacional de la Propiedad Industrial /s /denegatoria de patente*," JURISPRUDENCIA ARGENTINA [J.A.] (2002-III-409, 411) (Arg.).

183. See Charfoos, *supra* note 155, at 280-82.

184. See TRIPS, *supra* note 5, art. 10, at 324.

185. See JAYASHREE WATAL, INTELLECTUAL PROPERTY RIGHTS IN THE WTO AND DEVELOPING COUNTRIES 101-02 (2001).

186. See TRIPS, *supra* note 5, arts. 10, 27; see also Charfoos, *supra* note 155, at 271-73, 288.

187. See Charfoos, *supra* note 155, at 282, 288.

188. See *id.*

Argentine law does¹⁸⁹ and according to that definition, software can be an invention. Thus, Argentine law excludes only software code or abstract theory.

2. Interpretation of the Non-discrimination Clause Under the TRIPS Agreement and Its Relation to Argentine Patent Law

It is helpful to construe TRIPS in conjunction with Argentine patent law by following the rule set forth in the Argentine Supreme Court case of *Pfizer*.¹⁹⁰ In *Pfizer*, the court decided that the Vienna Convention on the Laws of Treaties (Vienna Convention), which also preempts federal laws, should be applied when construing TRIPS.¹⁹¹ Consequently, it is proper to interpret TRIPS and patent law in a way so they do not exclude each other.¹⁹²

The Vienna Convention¹⁹³ mandates that countries must perform their duties in good faith. It clearly states that an internal law cannot be used as an excuse to breach a treaty.¹⁹⁴ In Argentina, the APTO is a governmental agency¹⁹⁵ and the federal court system is a branch of Argentine government.¹⁹⁶ Therefore, they are obliged to comply with TRIPS in the way mandated by the Vienna Convention.¹⁹⁷

The first method of interpretation established by the Vienna Convention is a literal good faith interpretation, taking into account the ordinary meaning of the terms of the treaty to be construed.¹⁹⁸ Article 27 of TRIPS reads:

[s]ubject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step, and are capable of indus-

189. See Argentine Intellectual Property Law, *supra* note 8, art. 1.

190. Corte Suprema de Justicia [CSJN] [Supreme Court of Argentina], 21/05/2002, "Pfizer Inc. v. Instituto Nacional de la Propiedad Industrial /s /denegatoria de patente," JURISPRUDENCIA ARGENTINA [J.A.] (2002-III-409, 411) (Arg.).

191. *Id.*

192. See *id.* at 414.

193. Vienna Convention on the Law of Treaties art. 14, May 23, 1969, 8 I.L.M. 679, 1155 U.N.T.S. 331, available at http://untreaty.un.org/ilc/texts/instruments/english/conventions/1_1_1969.pdf [hereinafter Vienna Convention].

194. *Id.* arts. 26, 27, at 339.

195. See Argentine Patent Law, *supra* note 1.

196. CONST. ARG. art. 108 (1853), rev. 1994.

197. See Vienna Convention, *supra* note 193, art. 26, at 339.

198. *Id.* art. 31, at 340.

trial application. . . . [P]atents shall be available and patents rights enjoyable without discrimination as to . . . the field of technology.¹⁹⁹

Paragraph 2 allows members to exclude from patentability those inventions, which cannot be commercially exploited in their own countries.²⁰⁰ Such exclusion must be necessary to protect *ordre public* (morality), life, health, or the environment, and not simply because the exploitation of the invention is forbidden by law.²⁰¹ This provision is not a broad provision that allows countries to exclude an invention based on any economic reason.²⁰² Certainly software in general is not an invention that should be excluded from patentability to protect life, public safety, or morality.²⁰³

Therefore, software is not included in paragraph 3 of Article 27,²⁰⁴ a computer program is a field of technology that is not expressly excluded by TRIPS. It can be patented so long as it is an invention, new, involves an inventive step, and is capable of industrial application.²⁰⁵ Thus, the definition of invention and industrial application are critical in deciding whether software can be patented.²⁰⁶ In ordinary terms²⁰⁷ and according to Argentine patent law,²⁰⁸ an invention could be any device, product, or process made by man's intellect.²⁰⁹

Industrial application refers to anything that can be used in industry.²¹⁰ In broad common terms, industry refers to anything

199. TRIPS, *supra* note 5, art. 27, at 331.

200. *Id.*

201. *Id.* art. 27.2, at 331.

202. See Timothy G. Ackermann, *Dis'ordre ly Loopholes: TRIPS Patent Protection, Gatt and the Ecj*, 32 TEX. INT'L L.J. 489, 509-10 (arguing that the exemptions contained in TRIPS Article 27.2 should be narrowly construed not to allow exclusions of patentability based solely on economic reasons).

203. TRIPS, *supra* note 5, art. 27.2, at 331.

204. *Id.* art. 27.3, at 331.

205. *Id.* art. 27, at 331.

206. Under Article 27, if it is new and non-obvious will depend on the specific circumstances of the patent application. Conversely, if it is not considered an invention all patents on software will be excluded. *Id.*

207. See, e.g., BLACK'S LAW DICTIONARY (8th ed. 2004) (defining 'invention' as "a [] device or process created through independent effort and characterized by an extraordinary degree of skill or ingenuity; a newly discovered art or operation.").

208. See Argentine Patent Law, *supra* note 1 ("For purposes of this law every human creation that allows for transformation of energy or mass for the utilization of mankind is considered an invention.").

209. TRIPS, *supra* note 5, art. 28, at 332 (utilizing the terms 'product' and 'process').

210. See Argentine Patent Law, *supra* note 1.

that is useful in any economical activity (as opposed to an abstract theory without any application).²¹¹ This last interpretation is reinforced in the note of Article 27, which allows countries to use the word 'useful' instead of 'industrial application.'²¹² Argentine law provides this broad definition, and more precisely, the Argentine Congress has decided to provide software companies with the legal status of manufacture industries.²¹³

Computer programs can certainly be products, processes, or devices made by man that are useful from an economic point of view and that could provide solutions for industry.²¹⁴ Therefore, the literal interpretation of Article 27 likely tends to favor the inclusion of software as a field of technology that can be an invention with industrial application.

TRIPS should also be analyzed in its context, and in light of its object and purpose.²¹⁵ TRIPS Article 10 expressly mandates that "[c]omputer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971)."²¹⁶ This article must be interpreted in good faith, taking into account the objects and purposes of the agreement.²¹⁷ Therefore, properly construed, Article 10 does not justify the patentability exclusion of software. Article 10 mandates that the code of the software be protected under copyrights.²¹⁸ However, software is not only a code, but has functional aspects (when it runs in a computer or machine).²¹⁹ From the consumer point of view, this is in fact the most important feature of a piece of software.²²⁰ Article 10 mandates members to minimally protect the code of computer programs under copyright law.²²¹ Conversely, computer programs are more than just a code - they behave.²²² When software meets the

211. The term industry is similar to a business. See MERRIAM WEBSTER ONLINE DICTIONARY, <http://www.m-w.com/dictionary/industry> (last visited Jan. 23, 2007) (defining 'industry' as "a systematic labor especially for some useful purpose or the creation of something of value").

212. TRIPS, *supra* note 5, at 331 n.5.

213. Law No. 25.856, art. 1, Jan. 8, 2004, B.O. 08/01/04, available at <http://infoleg.mecon.gov.ar/infolegInternet/anexos/90000-94999/91606/norma.htm> [hereinafter Argentine Industry Law].

214. See TRIPS, *supra* note 5, art. 27, at 331; Argentine Patent Law, *supra* note 1.

215. Vienna Convention, *supra* note 193, arts. 31.1, 31.2, at 340.

216. See TRIPS, *supra* note 5, art. 10, at 324.

217. *Id.*

218. See Charfoos, *supra* note 155, at 271-85.

219. See *id.*

220. See *id.* at 274.

221. See *id.* at 271-72.

222. See *id.* at 274.

requirements of novelty, inventive step, and industrial application (broadly defined), it should not be excluded from patentability.²²³ When computer programs do not meet the patentability standards, the minimal protection available is copyright as provided by TRIPS Article 10.

The above conclusion is reinforced when we construe Article 27 in light of the treaty's objective "to promote effective and *adequate* protection of intellectual property rights."²²⁴ Because software is code (text or logical formulas) and also acts, both patents and copyrights should be available for sufficient protection of computer programs.²²⁵ Another relevant interpretative tool regarding treaties is the subsequent practice of the parties.²²⁶ In this sense, despite the provision contained in TRIPS Article 10, many members of TRIPS have not construed such a provision as implicitly or expressly excluding patentability of software.²²⁷ On the other hand, many members of TRIPS have to varying degrees, decided to allow patentability of software or software related inventions.²²⁸

3. Is the Argentine Law Inconsistent with TRIPS?

The short answer to this question is that Argentine law is consistent with TRIPS if the exclusion of software is narrowly construed. As held by the Argentine Supreme Court in *Pfizer*, a practical way to handle conflicts between TRIPS and Argentine law is not to exclude each other but to consider them as supplemental.²²⁹ Therefore, when Argentine law excludes patentability of software

223. TRIPS, *supra* note 5, arts. 10, 27, at 324, 331. As the UNCTAD-ICTSD, Project on Intellectual Property Rights and Sustainable Development concluded in its book, "[A]rticle 10 requires that copyright protection be extended to computer programs. However, TRIPS does not preclude additional forms of protection for computer programs. Thus, under TRIPS a member could offer patent, copyright and trade secret protection for computer programs. . . . What TRIPS requires, though, is that one of the options for legal protection is in the form of copyright law." UNCTAD-ICTSD, PROJECT ON IPRS AND SUSTAINABLE DEVELOPMENT RESOURCES BOOK ON TRIPS AND DEVELOPMENT 155 (2005).

224. *See id.* pmbl., at 320.

225. *See* Charfoos, *supra* note 155, at 281, 284.

226. Vienna Convention, *supra* note 193, art. 31.2(b), at 340.

227. This includes the United States, as well as some European countries such as the members of EPC, *supra* note 140, and Argentina after 2003. INPI, Patentability Guidelines, *supra* note 3. This issue will be discussed *infra* in Part II.

228. *Id.*

229. Corte Suprema de Justicia [CSJN] [Supreme Court of Argentina], 21/05/2002, "Pfizer Inc. v. Instituto Nacional de la Propiedad Industrial /s/ denegatoria de patente," JURISPRUDENCIA ARGENTINA [J.A.] (2002-III-409, 414) (Arg.).

we must construe such prohibition as referring to software that does not meet the patentability requirements. The exclusion should be construed as a mere example of possible exclusions and not as a mandatory literal indiscriminate exclusion.

Non-patentable computer programs are those that are not new, obvious, and cannot achieve an industrial product, result, or concrete process in any economical activity, including services.²³⁰ The code itself (i.e. the abstract mathematical formula) is excluded. Conversely, when the code or mathematical formula is applied or has the potential to be applied (when executed in a computer) in a concrete economic activity, then the software is patentable, regardless if it is claimed as pure software or as part of a larger invention.

If we construe the law literally so that it indiscriminately excludes patents on software, or if we require some special patentability requirement just for this field of technology, we are discriminating against this technology. Such discrimination is not permissible under TRIPS Article 27.²³¹ To prevent Argentina's breach of its international obligations, the APTO and the federal courts should avoid broadly construing the law excluding patentability of software when software meets the patentability standards.

4. Conclusion

This article proposes an inclusive interpretation of TRIPS and Argentine law whereby software could be the subject matter of a patent when it meets the patentability standards broadly defined by Argentine law, regardless of the way the invention is claimed.

There are also technical reasons to consider software as a machine or device that can be patented (even if the computer software is not claimed as part of a mechanical device or mechanical process, or representing physical data). The technical reasons

230. See Argentine Patent Law, *supra* note 1.

231. TRIPS, *supra* note 5, art. 27, at 331. It is interesting to point out that this provision was designed to fill the gap of the Paris Convention, which did not adequately prevent discrimination as to the field of technology. The UNCTAD-ICTSD, Project on Intellectual Property Rights and Sustainable Development have articulated this issue as follows: "[T]he law cannot discriminate in its treatment of different fields both in terms of availability of rights and of capacity to enjoy them. For instance, patents may not last differently depending on the field of technology involved, nor can they be subject to more stringent conditions (e.g., with regard to the acquisition of rights) in certain fields than in others." UNCTAD-ICTSD, *supra* note 223, at 368-69.

to be considered suggest that computer programs are inventions according to Argentine law and they can have industrial application and a technical effect.

C. *Computer Programs Can Technically Be Inventions*

The technical features of a computer program are important for two reasons. First, understanding what software really is sheds some light on the issue of why software is not adequately protected under copyright law alone. Second, when a computer program is understood as a machine or device that has an effect in the world, it is easy to understand that it can meet both the industrial application and technical effect standards.²³²

1. What is Software and Terminology?

Software has been defined as “what empowers a computer to handle information and to control information flow.”²³³ Software has both passive and active characteristics. From the passive perspective, software can be seen as a set of instructions directed to a computer. These instructions are called the code.²³⁴ (Using, for example, computer code such as the Beginner’s All Purpose Symbolic Instruction Code (BASIC), the code will look something like this: 10 PRINT “HELLO” (and for example in the next line behind) 20 GOTO 10).²³⁵

The manual for BASIC defines the code as “a set of directions, a recipe, that is used to provide an answer to some problem. It usually consists of a set of instructions to be performed or carried out in a certain order.”²³⁶

The data and parameters are the ingredients of the program, and the answers are the result.²³⁷ Code is designed to be *understood* by a computer, and when that happens, software has an

232. See GREGORY A. STOBBS, *SOFTWARE PATENTS* 49 (2d ed. 2000). For purposes of this article, the words ‘software’ and ‘computer program’ are used as synonyms. From an engineering point of view there could be differences between the two concepts. However, such differences are not within the scope of this work.

233. *Id.*

234. *Id.*

235. See Dartmouth C. Computation Ctr., *A Manual for BASIC: The Elementary Algebraic Language Designed for Use with the Dartmouth Time Sharing System*, DARTMOUTH C. (1964), at 1-3, available at http://www.bitsavers.org/pdf/dartmouth/BASIC_Oct64.pdf.

236. *Id.* at 1.

237. *Id.*

effect over the computer.²³⁸ The code is similar to 'language' because it uses mathematics, logic, and formulas, which are analogous to simple vocabulary and grammar structures.²³⁹ The 'language' is then directed to a computer or machine.²⁴⁰ This passive aspect, the code, is what copyright laws are mandated to protect under TRIPS Article 10.

The source code is what can be understood by a person, usually a software programmer or engineer who has some knowledge of the code. It can be written on a piece of paper, stored in a computer as readable media, or recorded through use of a special computer program.²⁴¹ From this passive perspective, the source code looks like a not very eloquent 'literary work,' although its main purpose is to communicate with a computer, and not to communicate ideas to another person.²⁴² The source code has to be translated into computer language to be understood.²⁴³ Once the computer 'understands' the code, it performs the instructions.²⁴⁴ The result of such translation is the 'object code.'²⁴⁵ A special program called a compiler performs this translation.²⁴⁶

As mentioned *infra*, the program text/code, for example 10 PRINT "HELLO" 20 GOTO 10, is passive but when it is executed, it becomes active.²⁴⁷ The computer or machine then carries out the set of instructions.²⁴⁸ In this example, the computer screen will show the word 'hello' many times. A computer program is thus a combination of both passive and active functional performance.²⁴⁹ In fact, from a consumer perspective, the most important feature of a computer program is what can be done with it once it is executed.²⁵⁰ As Pamela Samuelson says "[t]o put the point starkly:

238. *Id.*

239. *Id.* at 1-3.

240. *Id.* at 3. See STOBBS, *supra* note 232, at 63, for a thorough example of how the code works.

241. An example of a source code is 10 PRINT "HELLO." See STOBBS, *supra* note 232, at 65-66.

242. See JOSEF DREXL, 15 WHAT IS PROTECTED IN A COMPUTER PROGRAM?: COPYRIGHT PROTECTION IN THE USA AND EUROPE 11 (1994).

243. See STOBBS, *supra* note 232, at 61-63, 66-68.

244. *Id.* at 62.

245. *Id.* at 66.

246. See DREXL, *supra* note 242, at n.26; see also STOBBS, *supra* note 232, at 66-67.

247. See STOBBS, *supra* note 232, at 49.

248. *Id.*

249. See *id.*

250. See generally STOBBS, *supra* note 232; see also Samuelson, *supra* note 9, at 2315, 2318-19 (arguing that copyright protection is not adequate for computer software and proposing an alternative means of protection). In Samuelson's paper, she maintains that computer software is a virtual machine that requires a different

No one would want to buy a program that did not behave, i.e., that did nothing, no matter how elegant the source code "prose" expressing that nothing"²⁵¹

The way that a computer responds to a computer program is what makes the program valuable.²⁵² Copyright laws do not properly protect these execution aspects of programs.²⁵³ This special characteristic of the computer program is what makes it eligible for both copyright and for patent protection in certain cases. Therefore, a computer program *as such* can be seen as a machine or device,²⁵⁴ it is not a mental step,²⁵⁵ and it can meet any patentability standard under the correct interpretation of current Argentine patent law.

2. Computer Programs as Patentable Inventions: Software Can Be a Machine

Unlike a book, a computer program actually behaves.²⁵⁶ Like a machine or a device, computer programs have a concrete effect on the world around them.²⁵⁷ Unlike the first and second industrial revolution machines, which were built with iron, steel and bolts, a computer program is a machine or device of this new digital era built with text, algorithms, and information.²⁵⁸ A computer program is therefore as complex as any other device or machine, as its elements must be assembled correctly so that they can work together to bring the desired result.²⁵⁹ Also, like a machine or device, a computer program must interact with the user and other

protection mechanism. Although this concept that software can be seen as a machine or device that has an effect on the real world, this article takes the view that software can be protected by copyright, trade secret, and patent law. Should another means of protection be created, it may well also accumulate to these forms.

251. See Samuelson, *supra* note 9, at 2317.

252. See *id.* at 2318.

253. See Charfoos, *supra* note 155, at 271-74.

254. See Samuelson, *supra* note 9, at 2316, 2320.

255. See STOBBS, *supra* note 232, at 49, 51.

256. See Samuelson, *supra* note 9, at 2316-17, 2320.

257. See *id.* at 2320-22.

258. See *id.* at 2320-21. "To say that software is a machine is not to make an abstract metaphorical statement. Computer programs and physical machines have more in common than might be suggested by the legal description of programs as texts. First, behavior is common to both of them. . . . They exist in order to 'bring about a certain result' Second, . . . programs can just as well be physical machines; an electronic device that plugged into the computer could deliver identical behavior. . . . Third, programs, like other machines, often work together with other programs (and with other machines) to bring about their results." *Id.* (citations omitted).

259. See *id.* at 2321-22.

machines or programs.²⁶⁰

It is interesting to consider that the process of designing software is an industrial one.²⁶¹ First, the complex problem to be solved is reduced into manageable pieces. Then each piece of software is tested and afterwards assembled to create a whole, more complex software.²⁶² A computer program is built using the same concepts that are used to create other goods, so computer programs are inventions.²⁶³ Software is not patentable when it is a purely abstract idea, or a pure mathematical algorithm, formula or method without any application.²⁶⁴ The code by itself, split from any functional aspect, is copyrightable and not patentable subject matter.²⁶⁵

Software is a device or a machine, which in many cases replaces human mental work.²⁶⁶ Such an invention should be encouraged, and the legal system provides a tool for doing so - the patent system.²⁶⁷ A computer program is not a pure mental step. Many inventions, such as calculators, replace human mental activity and are patentable subject matter.²⁶⁸

A computer program is much more complex than a simple mental step. Software is information that is utilized by a computer or machine; it is not an abstract theory or thought. A piece of software is intended to solve a problem in the real world by interacting with a computer or machine.²⁶⁹ Thus, it can hardly be said to be a mental step.²⁷⁰

260. See *id.* at 2321 ("Software interfaces are the information equivalents of the gear teeth, levers, pulleys, and belts that physical machines use to interoperate."); see also STOBBS, *supra* note 232, at 53-54 (for a more detailed explanation of how interfaces work).

261. See Samuelson, *supra* note 9, at 2327-28.

262. See STOBBS, *supra* note 232, at 52, 54-55.

263. Compare *id.* at 52, 54, with Samuelson, *supra* note 9, at 2322 (arguing that computer engineering is more difficult because there are no standard components that can be purchased off the shelf or assembled by other suppliers).

264. See Robert A. Kreiss, *Patent Protection for Computer Programs and Mathematical Algorithms: The Constitutional Limitations on Patentable Subject Matter*, 29 N.M. L. REV. 31, 68, 88 (1999).

265. *Id.* at 76-81.

266. *Id.* at 86-87.

267. *Id.* at 86.

268. See *id.*

269. See Samuelson, *supra* note 9, at 2320-22.

270. See STOBBS, *supra* note 232, at 51, 61.

3. Software Production in Argentina is Equivalent to Industrial Activity

On January 6, 2004, Argentina enacted a statute that considered the production of software to be an industrial activity eligible for the same benefits, including tax exemptions and loans, that other manufacture industries are entitled to.²⁷¹ It can be argued that this law is intended to provide for industrial promotions and that it was never intended to modify the patent law.²⁷² Even so, the statute is a clear indication that the Argentine Congress does not consider software to be a mental act or an abstract mathematical formula, but rather the product of an industrial activity.²⁷³ As Samuelson argues, it seems that the Argentine Congress has perceived that "[o]nce one understands that programs are machines that happen to have been constructed in the medium of text, it becomes easier to understand that writing programs is an industrial design process akin to the design of physical machines. . . ."

²⁷⁴

In brief, computer programs, like machines, are designed to solve problems and to be useful for mankind.²⁷⁵ They are also designed to interact with the world and other machines. Technically, computer programs are inventions; they are devices created to solve technical problems. Thus, they can certainly have industrial application.

D. Patentability of Software in the United States and Europe

Subsequent conduct of the parties of TRIPS can aid in construing the scope of TRIPS, Article 27.²⁷⁶ In addition to that, the decisions of the European Board of Appeals on software-related inventions and the new EPO Guidelines are important tools in interpreting Argentine patent law. The statute excluding software, the APTO Guidelines, and the concept of 'technical effect' is completely based on the EPC and the EPO practice.²⁷⁷

First, this section will address the case of the United States and a few other countries briefly. Second, it will analyze the EPC

271. Argentine Industrial Law, *supra* note 213, art. 1.

272. *Id.*

273. *Id.*

274. Samuelson, *supra* note 9, at 2327-28.

275. *See id.* at 2320-22.

276. Vienna Convention, *supra* note 193, art. 31(3)(b).

277. *See* Bergel, *supra* note 109, at 14, 18, 20, 25, 31-32.

and EPO Board of Appeal's decisions on software. This analysis is useful to understand why Argentine law should follow the trend to liberalize the concepts of 'industrial application' (or 'utility requirement') and 'technical effect.'

1. The Case of the United States

In the United States, a patent is seen as an incentive for innovation.²⁷⁸ Any area of technology can be patented as long as what is invented or discovered is a process, a machine, a manufactured article, a composition of matter, or any new and useful improvement.²⁷⁹ There are limits, such as laws of nature, abstract ideas, natural phenomena or mathematical formulas,²⁸⁰ and this is not an exhaustive list.²⁸¹

In 1982, the United States Supreme Court decided the first case regarding software patents in *Diamond v. Diehr*.²⁸² The issue in *Diehr* was whether a process for curing synthetic rubber which included in several of its steps the use of a computer program was patentable subject matter under 35 U.S.C. § 101.²⁸³ The patent examiner rejected the patent, stating that a process carried out by a computer program was not patentable subject matter.²⁸⁴ The Patent and Trademark Office Board of Appeals (PTO) upheld the examiner. The Court of Customs and Patent Appeals then reversed, and the Commission of Patents and Trademarks appealed to the United States Supreme Court.²⁸⁵ The Supreme Court held that a patent claim does not become 'unpatentable' just because it contains excluded subject matter, but rather that the claim must be analyzed as a whole.²⁸⁶

278. See STOBBS, *supra* note 232, at 125.

279. 35 U.S.C. § 101 (1952).

280. See *Diamond v. Diehr*, 450 U.S. 175, 185, 191 (1981); see also STOBBS, *supra* note 232, at 125.

281. See Kreiss, *supra* note 264, at 33 (listing other limitations). As Kreiss argues in his article "the list should not be read literally. For example, paperback mystery novels, compact discs (CDs) containing musical recordings, and copies of paintings are copyrightable subject matter, not patentable subject matter, notwithstanding the fact that a paperback book with the novel, a CD with the music, and a copy of a painting are each an article of 'manufacture.' Furthermore, the Supreme Court has held that a 'process' for converting binary coded decimal numerals into pure binary numerals was not patentable subject matter, i.e., that this process is not the kind of 'process' that is listed in § 101" *Id.*

282. See *Diehr*, 450 U.S. at 175; see also STOBBS, *supra* note 232, at 147.

283. See *Diamond*, 450 U.S. at 177.

284. See *id.* at 179-80.

285. *Id.* at 181.

286. See *id.* at 187.

Applying the aforementioned principle, the Supreme Court found that the inventors did not seek to patent a mathematical formula by itself, but instead a process of curing synthetic rubber.²⁸⁷ The Court decided that the applicants were not claiming a mathematical formula by itself,²⁸⁸ and that the formula was applied as part of a process, so the inventors were claiming patentable subject matter.²⁸⁹ Since *Diehr*, the Supreme Court has not decided new cases related to computer program inventions.²⁹⁰

Since *Diehr*, the Federal Circuit has decided many cases that have broadly allowed patents on software.²⁹¹ Nevertheless, as the time of this article, the Supreme Court has accepted four patent cases, and at least one is related to software.²⁹² Thus, the Supreme Court may modify, overrule or uphold the modern patentability standards shaped by the lower courts.²⁹³

In 1994, the Federal Circuit held that general-purpose computer programs could be patented in *In re Alappat*.²⁹⁴ Alappat's claim contained a general-purpose computer program, so the invention was rejected.²⁹⁵ Alappat appealed to the Federal Circuit, which found that the claimed invention as a whole was more than just a mathematical formula; instead, it was a combination of interrelated elements, which could be regarded as a machine.²⁹⁶ The Court held that the invention "is not a disembodied mathematical concept which may be characterized as an 'abstract idea,'

287. *Id.* at 187-191.

288. *Id.* at 191.

289. *Id.* at 192 ("[W]hen a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (e.g. transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of § 101.").

290. See Kreiss, *supra* note 264, at 40.

291. *Id.* at 40-41.

292. See Steve Seidenberg, *Big Patent Year Pending: This Term the Supreme Court May Make Some Big Changes in Patent Law*, A.B.A.J. 14, 16 (Mar. 2006). Two cases were argued recently: *Laboratory Corp. of America Holdings v. Metabolite Laboratories Inc.*, 126 S. Ct. 2921 (2006), and *eBay Inc. v. MercExchange LLC*, 126 S. Ct. 1837 (2006) (relating to patents on software).

293. *Id.*

294. *In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994). "[S]uch programming creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software. . . . Consequently, a computer operating pursuant to software may represent patentable subject matter, provided, of course, that the claimed subject matter meets all of the other requirements of Title 35. In any case, a computer, like a rasterizer, is apparatus not mathematics." *Id.*

295. See *id.*

296. *Id.* at 1544.

but rather a specific machine to produce a *useful, concrete, and tangible result*”²⁹⁷

The Federal Circuit in *In re Lowry* went even further when it held that data structures stored in memory could be patentable subject matter,²⁹⁸ although mere information like that displayed on a computer screen is not regarded as patentable subject matter.²⁹⁹ Lowry’s patent application provided a method of organizing stored data in a computer memory, making more efficient data management possible.³⁰⁰ The PTO rejected the patent based on the fact that the data contained in the invention was “printed matter.”³⁰¹ Lowry appealed to the Federal Circuit, which decided that the patent was not claiming printed matter.³⁰² The court stated that the data needed to be processed by a machine (here a computer) and not by the human mind.³⁰³

Even with *Alappat* or *Lowry*, it still was not clear if computer programs were patentable when they were not claimed in combination with a mechanism, computer, process, memory, or system, which are all pure software.³⁰⁴ In 1996, the PTO Guidelines included computer programs as products, when claimed in a computer readable media, as patentable subject matter.³⁰⁵

In 1998, *State Street Bank and Trust Co. v. Signature Financial Group, Inc.* definitively resolved the question of the patentability of software in the United States.³⁰⁶ In this case, the claimed invention included computers and software that facilitated a business method - calculations needed to perform financial services and investments.³⁰⁷ The Federal Circuit held that mathematical calculations performed by machines that facilitated business methods could produce useful concrete and tangible results.³⁰⁸ It did not matter if the results, in this case a final share price, were just momentarily fixed numbers and not physical, tangible

297. *Id.* (emphasis added).

298. *In re Lowry*, 32 F.3d 1579, 1584 (Fed. Cir. 1994).

299. See STOBBS, *supra* note 232, at 167.

300. *Lowry*, 32 F.3d at 1580.

301. See *id.* at 1582-84.

302. See *id.* at 1584-1585.

303. *Id.* at 1583.

304. See Julie E. Cohen & Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CAL. L. REV. 1, 10 (2001).

305. See *id.* at 10 n.25.

306. See *id.* at 10-11.

307. See *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1371 (Fed. Cir. 1998); see also STOBBS, *supra* note 232, at 179, 204.

308. Cohen & Lemley, *supra* note 304, at 10-11.

objects.³⁰⁹ The Federal Circuit further stated that every process involving steps included an algorithm.³¹⁰ Therefore, only abstract algorithms alone are not patentable subject matter because they do not produce useful, concrete, and tangible results.³¹¹ Since *State Street Bank*, many patents on software, even software that performs business methods, are being issued without any requirement of tangible form.³¹² In brief, software in the United States is currently seen as a device, machine, product or process that can produce a useful result, and therefore software is patentable subject matter.

2. Patentability of Software at the European Patent Organization

The European Patent Organization (EPO) is the international organization created to apply the Convention on the Grant of European Patents (EPC).³¹³ As an independent international organization, it is not subordinate to the European Union. The EPO's chief purpose is to issue European patents.³¹⁴ The EPC is interpreted by the EPO Boards of Appeal, the EPO's adjudicatory body.³¹⁵ The EPC has been adopted by thirty-one European states, many of which are not members of the European Union.³¹⁶ Each state has its own national patent laws, which have been harmonized according to the EPC.³¹⁷ A European patent, granted by the EPO, generally provides the same rights as those granted by any national patent, and it is valid in any member state of the EPC as designated in the patent application.³¹⁸

The Argentine provision that defines the patentability requirements and that excludes software is inspired by the EPC,

309. See *State St. Bank*, 149 F.3d at 1373-75; see also *AT&T Corp. v. Excel Commc'ns, Inc.*, 172 F.3d 1352, 1356 (Fed. Cir. 1999).

310. See *State St. Bank*, 149 F.3d at 1374-75.

311. See *id.*

312. Cohen & Lemley, *supra* note 304, at 12.

313. For more information regarding the EPC and EPO, see the EPO Website at http://www.european-patent-office.org/epo_general.htm [hereinafter EPO Website].

314. See *id.*

315. EPO, Computer-Implemented Inventions, http://cii.european-patent-office.org/law_practice/boa/index.en.php (last visited Feb. 7, 2007) [hereinafter Computer-Implemented Inventions].

316. Compare EPO Website, *supra* note 313 (listing members of the EPO), with European Union Member States, http://europa.eu.int/abc/governments/index_en.htm#members (last visited Oct. 15, 2006) (listing the European Union Member States).

317. See European Patent Office Legal Framework, http://cii.european-patent-office.org/law_practice/index.en.php (last visited Oct. 15, 2006).

318. See EPO Website, *supra* note 313.

Article 52.³¹⁹ Also, the APTO Guidelines follow the *old* EPO Guidelines.³²⁰ Therefore, understanding the EPO system and how the concept of 'technical effect' has evolved in the caselaw of the EPO Board of Appeals is particularly useful when trying to understand and interpret the exclusion of software under Argentine law.

Article 52 of the EPC provides that patents shall be granted for any inventions which are susceptible to industrial application, which are new, and which involve an inventive step.³²¹ Programs for computers are not regarded as inventions,³²² but the European Patent Guidelines and the EPO Board of Appeals allow patentability of software when it makes a contribution to the known art.³²³ The exclusions contained in Article 52 are just examples of activities that are not considered inventions, and the exceptions must be narrowly construed.³²⁴ In Europe, the key to determining what is patentable is the existence of 'technical character.'³²⁵ Any invention that has 'technical character,' even if it contains a computer program, can be patented.³²⁶

The European Board of Appeals, which makes decisions with regard to patent rejections and oppositions within the EPO, has interpreted the scope and meaning of 'technical character' and the exclusion of software under the EPC.³²⁷ The first case on these issues was *VICOM*.³²⁸ In that case, the patentee claimed a method of digitally processing images, which involved a computer program and an apparatus for carrying out the method.³²⁹ The patent was rejected at the EPO for being a mathematical formula.³³⁰ The Board of Appeals overruled the rejection and found that the patentee was claiming a patentable invention.³³¹ The Board held that when a mathematical method is used in a technical process, it

319. Bergel, *supra* note 109, at 25.

320. *See id.* at 14, 18, 20, 25, 31-32. When both documents are compared, it is evident that the 'technical effect' concept was taken from the EPO Guidelines.

321. European Patent Convention, art. 52, Oct. 5, 1973, 13 I.L.M. 268, *available at* http://db1.european-patent-office.org/www3/dwld/epc/epc_2002_v1.pdf [hereinafter EPC].

322. *Id.*

323. GRAEME B DINWOODIE ET AL., INT'L & COMP. PAT. L. 111 (2003).

324. Computer-Implemented Inventions, *supra* note 315.

325. *See id.*

326. *See id.*

327. *See id.*

328. Case T-0208/84, *Vicom*, EPO 1987.1/p:14 (1986)

329. *See* STOBBS, *supra* note 232, at 497-98.

330. *See id.*

331. *Id.* at 498.

could be patented.³³² This was the first case to allow the patentability of software by narrowly construing Article 52, paragraph 2, of the EPC.³³³

3. The EPO Allows Patentability of Pure Software When it is Claimed as a Product: TRIPS Interpretation and the Meaning of 'Technical Character' According to the EPO Board of Appeals

In 1999, the Board of Appeals decided the case *International Business Machines Corporation*.³³⁴ The examining division rejected IBM's European patent application because a computer program was claimed.³³⁵ In fact, claim 7 of the patent recited a computer program code saved on a computer readable media.³³⁶ The Board decided to take TRIPS into consideration when deciding the issue of whether software can be patented as a product, and it acknowledged that TRIPS is not applicable to the EPO because the organization is not a member of the WTO.³³⁷ According to the Board, the intention of TRIPS Article 27 is to prevent patentability exclusions for any inventions including computer programs.³³⁸

In the Board's view, Article 10 of TRIPS did not influence the conclusion that Article 27 provides for the patentability of software.³³⁹ The Board determined that there was no conflict between the two articles; copyrights and patents can coexist and jointly protect computer programs each in their own way.³⁴⁰

The technical character of the computer program is what must be taken into account when deciding if a piece of software is patentable or not.³⁴¹ Only computer software is excluded under EPC Article 52 and means when the software is a mere abstract creation.³⁴² On the contrary, when a computer program has a

332. *Id.*

333. *Id.*

334. See generally Case T-0935/97-3.5.1, Int'l Bus. Mach. Corp., Bd. of Appeal of the EPO, ¶ 9-10 (Feb. 4, 1999), available at <http://legal.european-patent-office.org/dg3/pdf/t970935eu1.pdf>.

335. *Id.* at 1.

336. *Id.*

337. *Id.* at 11.

338. *Id.* at 12.

339. *Id.* at 12-13

340. *Id.*

341. *Id.* at 15.

342. *Id.*

technical character, it is patentable.³⁴³ The technical character of a computer program

could be found in the further effects deriving from the execution (by the hardware) of the instructions given by the computer program. Where said further effects have a technical character or where they cause the software to solve a technical problem, an invention, which brings about such an effect may be considered an invention³⁴⁴

Thus, according to the Board, not only can a patent on software be granted when it is part of an industrial process or is part of a machine, but also all computer programs must be considered to be inventions as long as they meet the patentability requirements.³⁴⁵ Every computer program product³⁴⁶ produces an effect when it is run in a computer,³⁴⁷ and this effect can be technical.³⁴⁸ The Board allowed patentability of software products because it makes no sense to make a distinction between a direct technical effect (i.e., when the program runs) and a potential technical effect (i.e., when the program is stored in the floppy disc).³⁴⁹ As the Board put it, "[a] computer program product may therefore possess a technical character because it has the potential to cause a predetermined further technical effect."³⁵⁰

Accordingly, this case recognized that a computer program even when claimed in a computer readable media can have a further technical effect when run in a computer, and, therefore, it should be accepted as patentable subject matter.³⁵¹ This case is important in the Argentine context because the Board considered Article 27 of TRIPS to narrowly construe the exclusion of software under EPC Article 52.³⁵² The Board allowed patentability of software because it viewed software as an article of manufacture.³⁵³ It held that the language in EPC Article 52, and TRIPS

343. *Id.*

344. *Id.* at 17.

345. *Id.* at 17-18.

346. *Id.* at 21-22. When software is claimed as a product like it was in this case, the software encompasses a computer-readable medium, which is only important as physical support for the program (such as a CD ROM). The hardware, however, is not important. The importance rests on the behavior of the computer program.

347. *Id.* at 22

348. *Id.* at 22-23.

349. *Id.*

350. *Id.* at 23.

351. *Id.*

352. *Id.* at 10-13.

353. *Id.* at 33.

Article 10 refers to a computer program that does not have an effect.³⁵⁴

4. Computer Systems that Perform Business Methods

In *Pension Benefit Systems Partnership*, the Board rejected a patent for a method of doing business but accepted that a computer system programmed to carry out such method is an invention.³⁵⁵ In that case, the European examiner rejected the patent application because it considered the invention only to be a method of doing business.³⁵⁶ The patent claimed a method of controlling pension benefits, as well as a computer method, an apparatus for controlling the pension benefits system.³⁵⁷ The computer 'means' and method claimed were intended to create a new pension system by reducing costs and enhancing its reliability.³⁵⁸

The Board held that only methods of doing business were excluded from patentability under EPC Article 52, but that if a technical character were present in the method, then it could be regarded as patentable subject matter.³⁵⁹ In this case, however, the court found no technical character.³⁶⁰ The Court held that the claimed invention was a mere method involving only economic concepts and business practices.³⁶¹ Conversely, when analyzing the apparatus claim, the Board construed the claim as being a suitable programmed computer or system of computers.³⁶² The Board held that "a computer system suitably programmed for a particular field, even if that is the field of business and economy, has the character of a concrete apparatus in the sense of a physical entity, man-made for a utilitarian purpose and thus an invention. . . ."³⁶³ It also found that a computer system controlled by software is a physical entity or a concrete product even when it performs an economic activity, and therefore it is patentable subject matter.³⁶⁴ In the case at hand, however, the patent was

354. *Id.*

355. See Case T-0931/95- 3.5.1, *Pension Benefit Sys. P'ship*, Tech. Bd. of Appeal of the EPO (Sept. 8, 2000), available at <http://legal.european-patent-office.org/dg3/pdf/t950931eu1.pdf>.

356. *Id.* at 1-2.

357. *Id.* at 4-5.

358. *Id.* at 6-7.

359. *Id.* at 9.

360. *Id.* at 10.

361. *Id.*

362. *Id.* at 13-14.

363. *Id.* at 13.

364. *Id.*

rejected for lack of an inventive step, and not because the software was not regarded as an invention.³⁶⁵

The Board in *Pension Benefit Systems* expanded the meaning of ‘technical character’ by determining that when a computer program controls a system of computers to perform operations in the field of business or economy, it is a useful device that can be regarded as having a physical entity and therefore patentable.³⁶⁶ Certainly this case opened the door to business method patents in the internet setting in Europe. According to the Board, computer software is a device that, when run on a computer, can have technical effects or solve technical problems even if those problems are in the business field.³⁶⁷ This expansion of the meaning of ‘technical requirement/effect’ is relevant in the Argentine context if the APTO is to narrowly construe the exclusion of software provision.³⁶⁸

5. Opening the Door for Internet-Related Inventions at the EPO

In April 2004, the Board of Appeals held that an internet-related invention could be patentable subject matter.³⁶⁹ Hitachi applied for an “automatic auction method executed in a server computer” and a “computerized auction apparatus.” The examiner rejected the patent for being a business method.³⁷⁰ The Board overruled the examiner’s decision and held that both the method and apparatus claims were patentable subject matter; however, the patent was still rejected for lack of inventive step.³⁷¹ The Board also held that software running on a computer system that is used for carrying out business methods could be regarded as patentable subject matter because the EPC excludes only business methods, which constitutes “purely abstract concepts devoid of any technical implications”³⁷²

365. *Id.* at 15-16.

366. *Id.* at 13-18.

367. *Id.* at 14.

368. Argentine Patent Law, *supra* note 1, art. 6.

369. Case T-0258/03 Hitachi, Ltd., Tech. Bd. of Appeal of the EPO, (Apr. 21, 2004), available at <http://legal.european-patent-office.org/dg3/pdf/t030258ex1.pdf>.

370. *Id.* at 1, 6.

371. *Id.* at 10-19.

372. *Id.* at 13.

6. Guidelines for Examination in the EPO³⁷³

In June 2005, the EPO published the Guidelines for Examination, which summarized Board of Appeal's decisions on patentability of software-related inventions.³⁷⁴ Pure computer programs are regarded as a form of "computer-implemented inventions."³⁷⁵ The Guidelines instruct examiners to consider software to be a patentable invention regardless of the way it is claimed, including when it is claimed as 'the program itself' in computer-readable media.³⁷⁶ Also, the object of the invention can be to fill a business niche, or to provide some "new entertainment."³⁷⁷

A computer program that is categorized as a manufactured article is patentable when it has the potential "to bring about . . . a further technical effect which goes beyond the normal physical interaction between the program and the computer."³⁷⁸ A computer system programmed for use in any field including business and economy matters is an apparatus and therefore is an invention.³⁷⁹ The Guidelines instruct examiners to consider the novelty and inventive step requirements before considering the technical character when the later element is not present *prima facie* in the claimed invention.³⁸⁰ An inventive step is present for the purposes of patentability when the computer program solves a technical problem.³⁸¹ If the program solves a technical problem, it is making a contribution to the art and it is patentable subject matter.³⁸²

In brief, the EPO currently considers pure software inventions to be patentable subject matter. In doing so, it narrowly construes the exclusion of software under EPC Article 52 thereby expanding the concept of 'technical character.' Given the similarity between Argentine law and the EPC,³⁸³ this sets a good example for the APTO and the Argentine federal courts regarding the current trend to expand the concept of 'technical field' to make it available to new technologies.

373. EPO, GUIDE FOR EXAMINATION IN THE EUROPEAN PATENT OFFICE (June 2005), pt. C, ch. IV, § 2.3.6, *available at* http://www.european-patent-office.org/legal/guidelines/pdf_2005/guidelines_2005_e.pdf.

374. *Id.*

375. *Id.*

376. *Id.*

377. *Id.*

378. *Id.*

379. *Id.*

380. *Id.*

381. *Id.*

382. *Id.*

383. *See* Bergel, *supra* note 109, at 14, 18, 20, 25, 31-32.

7. Conclusion

Some members of TRIPS have begun accepting patentability of software in different contexts and within different scopes. In the United States, pure software patents and methods of doing business using software are patentable.³⁸⁴ In Argentina, software can be patented when it is part of a larger invention.³⁸⁵ Additionally, the EPO has expanded the concept of technical effect to encompass pure software.³⁸⁶ The EPO also seems to be opening the door to patent inventions in which software is used for methods of performing economical activities.³⁸⁷

As technology evolves, sufficient flexibility of the patent laws is required to adequately protect inventors; this is the world trend. A good faith, broad interpretation of TRIPS Article 27 is evolving in many settings to recognize pure software as an invention when it behaves and has an effect on economic activities and the industry. Argentina should not be an exception. Harmonization of patent law is essential to promote free flow of international trade.³⁸⁸

IV. POLICY REASONS FOR GRANTING PATENTS ON SOFTWARE IN ARGENTINA

The Argentine software industry has been growing steadily in the last few decades.³⁸⁹ Nevertheless, it is not an industry that has an important presence in, or share of, the world market; it is, in fact, very far from that point today.³⁹⁰ Argentina has the potential to become a country with a considerable software development industry.³⁹¹ Argentina's main asset is the presence of relatively highly educated professionals in the field, and the country could be used as a base to expand markets to other Spanish-speaking countries.³⁹² Also, after the important devaluation of the Argen-

384. *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1376-77 (1998).

385. INPI Patentability Guidelines, *supra* note 3, pt. C, ch. IV, ¶¶ 2.1, 2.1.3(a), app. VII, at 44, 45, 47-48, 149-52.

386. Case T-0935/97-3.5.1, *Int'l Bus. Mach. Corp., Bd. of Appeal of the EPO*, ¶ 9-10 (Feb. 4, 1999), available at <http://legal.european-patent-office.org/dg3/pdf/t970935eu1.pdf>.

387. Case T-0258/03 *Hitachi, Ltd, Tech. Bd. of Appeal of the EPO* (Apr. 21, 2004), available at <http://legal.european-patent-office.org/dg3/pdf/t030258ex1.pdf>.

388. *See* TRIPS, *supra* note 5, pmbl., at 320.

389. Chudnosky & Lopez, *supra* note 18, at 1.

390. *See id.*

391. *Id.* at 14.

392. *Id.* at 1.

tine currency in 2002, labor costs and telecommunications costs have been significantly reduced.³⁹³ Conversely, importation costs for foreign goods, such as new hardware and technology, have increased.³⁹⁴ Argentina has recently decided to encourage the development of the software industry.³⁹⁵ To do so, the country has adopted a strategic plan aimed at encouraging development of a strong presence of a local and foreign software industry in Argentina, based mainly on tax exemptions, financial incentives, and other benefits.³⁹⁶

A. *The Software Industry in Argentina*³⁹⁷

In 2000, Argentina recorded nearly one billion dollars in sales of software products. Local software products accounted for about \$350 million, while foreign products accounted for about \$627 million.³⁹⁸ The information industry consists of about 500 firms, which employ approximately 15,000 highly skilled people, mainly Argentine nationals graduating from software-related programs.³⁹⁹ The information technology industry is generally concentrated in a few cities - Buenos Aires, Rosario, Cordoba, and Mendoza.⁴⁰⁰ The local software industry mainly caters to the domestic market, and it does not export its products. Argentina is therefore far from India, Israel or Ireland's example.⁴⁰¹ The local

393. *Id.* at 14.

394. *Id.* at 1-2.

395. See *Software and IT Services Forum*, *supra* note 18; see also Subsecretaria de Industria, Regimen de Ley de Promocion de la Industria del Software [Regime of Law of Promotion of the Industry of Software], <http://www.industria.gov.ar/lpsw/default1.htm?zwfe45> (last visited Jan. 26, 2007) (containing information about the industrial promotion regime in Spanish). Law No. 25.856 was enacted in 2004, which considers software production an industrial activity, making it eligible for other benefits already available for manufacture industries. In the same year, a specific industrial promotion of software statute was enacted under Law No. 25.922, which provided for ten-year tax exemptions for those companies partially or totally engaged in software production and development.

396. See *Software and IT Services Forum*, *supra* note 18.

397. Software markets and technology are continually evolving. Also, the circumstances in Argentina change dramatically from decade to decade. Therefore, the description herein contained should be considered to be a picture of a particular time in history. For purposes of this article, however, it is useful to have some information about the composition and development of the industry. In turn, this will help the reader to objectively consider the advantages and costs of a software patent system in Argentina.

398. Chudnosky & Lopez, *supra* note 18, at 6.

399. *Software and IT Services Forum*, *supra* note 18, at 128.

400. *Id.* at 38.

401. Chudnosky & Lopez, *supra* note 18, at 7 (arguing that the local industry accounts for thirty-six percent of the sales of software products).

industry is still young and small to medium in size, and, in almost all cases, the annual sales are below two million dollars.⁴⁰²

Local software developers enjoy advantages in certain well-defined internal markets, such as banking, public administration, retail trade, and in those fields where internal regulations and knowledge of the country's culture are needed.⁴⁰³ The customers are mainly local consumers, and small and medium-sized companies often develop software for professionals such as accountants or lawyers.⁴⁰⁴ Another advantage is the ability of the local software industry to perform services and to adapt itself to the clients' specific needs and demands.⁴⁰⁵ These advantages in the internal market become a disadvantage, though, when software developers attempt to expand their operations or sales abroad.⁴⁰⁶

Local companies lack adequate access to financial markets and to research and development institutions.⁴⁰⁷ The financial market in Argentina is generally small, and there is almost no venture capital.⁴⁰⁸ This is a particular problem for software companies because they produce intangible goods, which in turn are not greatly appreciated or understood by banks and the financial market.⁴⁰⁹ To cope with this problem, the government has created a special loan system for the software industry called el Fondo Fiduciario de Promoción de la Industria del Software (FON-SOFT).⁴¹⁰ The government has also provided tax exemptions and other benefits.⁴¹¹ These are important tools for the development of a software industry, although here it is argued that patents have the potential also to become important tools for financing the industry, especially for small developers.

1. Patents as Tools for Innovation in the Software Industry

Generally, a company interested in attracting investments must have either a valuable asset that will be used as collateral of

402. *Id.*

403. *Id.* at 12.

404. *Id.*

405. *Id.* at 12-13.

406. *Id.* at 12.

407. *Id.* at 15.

408. *Id.*

409. *See id.*; see also *Software and IT Services Forum*, *supra* note 18, at 42.

410. Law No. 25.922, Sept. 7, 2004, B.O. 09/09/2004, at 1, available at <http://infoleg.mecon.gov.ar/infolegInternet/anexos/95000-99999/98433/norma.htm> [hereinafter Argentine Promotion of the Software Industry Law].

411. *Id.*

a loan or sufficient market power or revenues.⁴¹² In the case of a real estate company, its tangible assets are easy to value and protect. On the other hand, an intangible asset such as a computer program is dependent upon adequate protection and enforcement of the law to become an attractive asset. Software, in particular, can be easily copied by anybody. Therefore, the value of the software company is highly influenced by intellectual property protection.

The Argentinean government and economists agree that the enforcement of intellectual property rights, access to financial markets, and access to research and development institutions are important elements to foster the development of the software industry.⁴¹³ The current government has emphasized that strong copyright protection is important in the development of the software industry.⁴¹⁴ Problematically, the copyright laws only provide for the protection of the passive aspect of a computer program, the exact code, which prevents unauthorized copies of the work.⁴¹⁵ The laws do not adequately protect the functional aspects of the computer program.⁴¹⁶ Copyright protection is very important in the fight against piracy, but that protection alone is not adequate.⁴¹⁷

A competitor can copy the behavior of a computer program without engaging in literal copying of the code.⁴¹⁸ The competitor can employ 'clean' reverse engineering or simply create a totally different code.⁴¹⁹ This in turn will have a negative impact on the software developer who cannot recover his costs or cannot attract enough capital for his endeavor.⁴²⁰ For that reason, it is in the best interest of a software developer to seek patent protection of his software when it meets the patentability requirements. By doing so, the software developer will be closer to protecting its

412. See Ronald J. Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 TEX. L. REV. 961, 973-977 (2005).

413. See *Software and IT Services Forum*, *supra* note 18, at 21, 43 (arguing that Argentina fully complies with the TRIPS Agreement and that the challenge is just to "reduce piracy and to ensure adequate protection to all programs under copyright . . ."); see also Chudnosky & Lopez, *supra* note 18, at 4.

414. *Software and IT Services Forum*, *supra* note 18, at 43.

415. See Mann, *supra* note 412, at 1012-14; see also Bradford L. Smith & Susan O. Mann, *Innovation and Intellectual Property Protection in the Software Industry: An Emerging Role For Patents*, 71 U. CHI. L. REV. 241, 249 (2004).

416. See Mann, *supra* note 412, at 1012.

417. *Id.* at 1012-13.

418. *Id.* at 1012-14.

419. *Id.* at 1014-15.

420. Smith & Mann, *supra* note 415, at 241.

functional aspects.⁴²¹ The developer will have total control over his creation, preventing other companies from copying his software in any possible way.⁴²² A computer program adequately protected against the copying of particular expression of ideas and behavior makes it a valuable asset that has the most potential to attract capital.⁴²³ Large software corporations also benefit from patents; however, those companies already have access to financial markets. Many of them are publicly held corporations, and they participate in many stock markets around the world.

A large amount of money and time are required to create a successful product, so young local firms in Argentina need access to loans and legislation that promote venture capital.⁴²⁴ Access to venture capital is crucial for the strategic development of the industry in Argentina⁴²⁵, including joint venture projects with foreign companies.⁴²⁶

Currently, Argentine legislation does not adequately promote the creation of venture capital.⁴²⁷ The government is considering endorsing a bill to regulate a special venture capital regime for the software industry as well as other technologies or industries.⁴²⁸ If the bill is ultimately passed, patents could take on a very important role in securing venture capital. Nevertheless, as Ronald Mann argues, not all potential capital investors necessarily base their decision to invest solely on IP protection.⁴²⁹ Some investors focus their analysis on different aspects of the business, such as whether the company can execute the proposed plan, the characteristics of the market served by the company, and the company's

421. See Mann, *supra* note 412, at 988.

422. See Smith & Mann, *supra* note 415, at 256-257.

423. See Mann, *supra* note 412, at 986, 987, 1028; see also Martin Campbell-Kelly, *Not All Bad: An Historical Perspective on Software Patents*, 11 MICH. TELECOMM. & TECH. L. REV. 191, 196-97 (2005). A good example is the case of Charles Ferguson developer of the FrontPage software, who patented his invention. "Protected by his patents, Ferguson secured \$4 million in venture capital Investors had some collateral in the intellectual property of the patents and the development of FrontPage itself could take place.")

424. See Mann, *supra* note 412, at 974-75.

425. *Software and IT Services Forum*, *supra* note 18, at 21.

426. *Id.* at 22-24.

427. *Id.* at 99.

428. *Software and IT Services Forum*, *supra* note 18, at 24. The rationale for the bill is reproduced in pages 71-78. It is not in the scope of this article to consider if it is an adequate law, but the importance is to stress that the strategic plan considers the encouragement of venture capital and its regulation an important step in the development of a software industry.

429. See Mann, *supra* note 412, at 975-78.

clientele.⁴³⁰ The analysis primarily hinges upon the potential revenues that the company can generate, as well as on its market power.⁴³¹ While some investors will not invest if there is no patent protection, others do not seem to consider patents to be the decisive factor.⁴³² Mann concludes that patents facilitate the formation of small firms in the United States⁴³³

Based on the United States' example, if a bill that fosters venture capital is finally passed in Argentina, patents will have the potential to play an important role in the investor's decision to fund small software developers, especially if the capital is from regions where such protection is allowed. Patentable subject matter should not be limited to old technologies only. If the public policy goal is to encourage innovation and development in the software industry, we should make such protection widely available.

Narrowing the scope of the patent system to inventions with strict 'physical' elements will exclude a whole new era of technological advances such as computer programs from patentability. That does not serve the goal of the patent system.⁴³⁴ Thus, the APTO and the federal courts have sufficient policy reasons to construe the patent law and the Argentine constitution pursuant to the flexibility required by new developments, as well as to adequately protect inventors' rights.

*B. Seeking a Balance on Intellectual Property Rights:
Possible Solutions for the Software Industry*

Patents on software will not just bring benefits for the software industry in Argentina; there are also many disadvantages and costs. This article does not argue for the development of a local industry based on the free riding of others' works and ideas because that is not beneficial for the country in the long term. For example, if it is Argentina's plan to develop a software industry capable of exporting its goods to the most important software markets of the world, and to encourage joint ventures with international investors, Argentina will be unsuccessful if the products infringe patents granted internationally. The harmonization of

430. *Id.* at 975-76.

431. *Id.* at 976.

432. *Id.* at 977-78.

433. *Id.* at 1028.

434. Kreiss, *supra* note 264, at 66.

Argentine and world patents law is therefore beneficial in the long run.

Nevertheless, there is no guarantee that investments will flow and the industry will grow if Argentina allows protection of pure software products by patents. The Argentinean patent system might just be used by international corporations to patent their inventions.⁴³⁵ The development of a strong software industry will depend on many other factors such as the creation of a university system which encourages independent research on software and other technologies, and which trains capable software engineers. Granting patents is just one tool to promote investments, yet the objections on 'software patents' are sometimes attacks on the patent system itself. Taking into account that thousands of patents on software are being issued in many regions of the world⁴³⁶ and that many will be granted in Argentina in the future,⁴³⁷ those objections do not add to the debate.⁴³⁸

There are important disadvantages with regard to patents on software that have been addressed by some commentators and that must be taken into account.⁴³⁹ In many cases, the patent law, the antitrust regulations, and TRIPS, when combined, could provide for good solutions to balance patent rights. It is upon the discretionary power of the courts to cope with many of the problems raised by software patents. In other cases, legislative reform may be needed to achieve the desired balance between a patent system that both protects the inventor's rights and avoids hampering innovation or competition. This is not, however, an easy task, and certainly this article is not intended to analyze those problems in detail.

This section will address two major problems that have derived from software patents that were addressed by commentators in the United States: the impossibility of reverse engineering and the problems created by the doctrine of equivalents. Finally,

435. See TRIPS, *supra* note 5, art. 27, at 331. This is totally consistent with our international obligations.

436. See David S. Evans & Anne Layne-Farrar, *Software Patents and Open Source: The Battle over Intellectual Property Rights*, 9 VA. J. L. & TECH. 10, 13, 14 (2004) (which contains a description of the history and ideology of the open source movement); see also Cohen & Lemley, *supra* note 304, at 12.

437. Especially after the 2003 Guidelines accepted the patentability of certain software-related inventions, the patentability of pure software could become a matter of crafty claiming.

438. This is true unless the debate is about changing the whole IP system. Although this is not a closed debate, the issue falls outside of the scope of this article.

439. See generally Cohen & Lemley, *supra* note 304.

this section will briefly analyze the relationship between open source software and patents. This is very important for the local industry that depends on open source code.

1. Balanced Intellectual Property Rights

In the United States, one of the problems with patenting pure software is that it could impede lawful reverse engineering and therefore create market barriers, especially in the case of small or medium companies.⁴⁴⁰ When the code of a computer program is not made available to the public, it must be reverse engineered to be understood.⁴⁴¹ In the United States, reverse engineering is allowed on a case-by-case basis under the doctrine of fair use in copyright law. Transformative commercial use in certain circumstances can be seen as fair use.⁴⁴² Reverse engineering is important to enable one computer program to work with another (e.g. to make Netscape Navigator work with Windows)⁴⁴³ so it promotes competition, lowers market barriers, and is good for consumers.⁴⁴⁴ There is no express provision in the patent law or patent fair use doctrine that allows for reverse engineering.⁴⁴⁵

This reasoning is not applicable in Argentina because the law impedes any kind of copy, except for backup copies, or the use of the software without the owner's authorization.⁴⁴⁶ There is no fixation requirement, and even storage in the RAM memory without authorization can be seen as copy.⁴⁴⁷ The copyright owner has a right to authorize the use, rent and reproduction of the software.⁴⁴⁸ Caselaw in Argentina has never discussed fair use in the software context so it is very uncertain if this practice is currently allowed.⁴⁴⁹ The Berne Convention Article 9.2, and TRIPS Article 13 allow for certain exemptions to copyright rights only in special non-commercial circumstances.⁴⁵⁰ It is not clear if they allow reverse engineering in the software industry context.⁴⁵¹

440. *Id.* at 17-22.

441. *Id.* at 56.

442. *See* Newby, *supra* note 49, at 1640-41.

443. *See* Cohen & Lemley, *supra* note 304, at 21.

444. *Id.* at 22.

445. *Id.* at 17.

446. Argentine Intellectual Property Law, *supra* note 8, art. 9.

447. *See* Cabanellas, *supra* note 64, at 270.

448. Argentine Intellectual Property Law, *supra* note 8, art. 2.

449. *See generally* Newby, *supra* note 49 (for an excellent comparative discussion about different fair use copyright doctrines around the world).

450. *Id.* at 1636.

451. *Id.*

As mentioned *supra*, Argentine copyright exemptions are very narrow, and no commercial fair use is allowed.⁴⁵² Therefore, protecting software under patent laws will not change the scenario in Argentina. Nevertheless, reverse engineering can be considered to be desirable when it is used to promote competition. To allow such practice, Argentine courts can construe existing antitrust laws and TRIPS Article 40 to be applied to both patent and copyrights in Argentina.⁴⁵³ Another solution is to require the patent applicant to disclose the code in the patent application.⁴⁵⁴

Other doctrines or patent exemptions like the doctrine of experimental use, compulsory license provisions could also allow for reverse engineering. It is not clear to what extent the courts will allow reverse engineering for purposes of competition. Thus, it is not a bad idea to promote legislation in the area if it is required by the industry and the Argentine society.⁴⁵⁵

In short, the current protection of software in Argentina does not expressly allow for reverse engineering. In fact, it is forbidden, and granting patents will not change this scenario. If reverse engineering is a desirable tool for the software industry, there are many solutions that can be explored within the legal system, including enacting special statutes, and there is no need to forbid patents to achieve a desired balance in this area.⁴⁵⁶

2. The Doctrine of Equivalents

Another concern in the software context has been that the doctrine of equivalents could improperly expand patent rights.⁴⁵⁷ This is particularly dangerous in the software industry where the prior art is not so easy to find and where development is accumulative.⁴⁵⁸ In Argentina there is not an express provision allowing for the interpretation of claims under the doctrine of equivalents, and there is no caselaw on the subject. The Argentine patent law seems to suggest a method of literal interpretation only.⁴⁵⁹ The doctrine of equivalents is an important tool to prevent fraud on

452. *Id.* at 1643 ("For instance, Argentina has an extremely limited and rigid fair dealing exception in its copyright law Argentina . . . lists a narrow field of limitations on the copyright owner's rights in Article 10 of its Copyright Act of 1933.").

453. TRIPS, *supra* note 5, art. 40.

454. See Mann, *supra* note 412, at 1026.

455. See Cohen & Lemley, *supra* note 304, at 29.

456. See *id.* at 56-57.

457. *Id.* at 39.

458. *Id.*

459. Argentine Patent Law, *supra* note 1, art. 11.

the patentee's rights, though there is a very good chance that if litigation arises around claim interpretation, Argentine courts will adopt the doctrine in the future either through an expansive interpretation of patent law or through general principles of civil law aimed to prevent fraud.

In the software context, courts should be cautious in extending the doctrine too broadly. Because of the lack of clearly documented prior art, the doctrine could be used to encompass prior art in the claims of a software patent.⁴⁶⁰ If litigation on software patents ever arises in Argentina, a cautious interpretation of the doctrine of equivalents may solve this potential problem.

C. *Open-Source and Patents*

Finally, one important cost of granting patents on software is the possibility of hindering the open source business model.⁴⁶¹ When a computer program is distributed under an open source license, the source code is disclosed to the developer.⁴⁶² The software developer produces his own derivative works, and he is allowed to commercialize or distribute such work pursuant to the conditions laid out in the specific license.⁴⁶³ Additionally, the open source business model is a model in which independent programmers collaborate in a common decentralized project.⁴⁶⁴ In this setting, patents create a special risk - independent programmers without patents of their own could write software that infringes a patent.⁴⁶⁵ This problem is exacerbated by the fact that open source developers usually disregard patents.⁴⁶⁶ The problem could be fixed, however, within the patent system. If software patents were granted in Argentina, open source developers could obtain patent protection on their own inventions in order to protect themselves from patent litigation by negotiating cross-licensing agree-

460. See Cohen & Lemley, *supra* note 304, at 42-45.

461. See Mann, *supra* note 412, at 1010-11.

462. See Evans & Layne-Farrar, *supra* note 436, at 3.

463. See *id.*

464. See Matthew D. Satchwell, *The Tao of Open Source: Minimum Action for Maximum Gain*, 20 BERKELEY TECH. L.J. 1757, 1774-75 (2005).

465. See Ronald J. Mann, Commercializing Open Source Software: Do Property Rights Still Matter?, 2 (Mar. 3, 2006) (unpublished manuscript, available at <http://law.bepress.com/cgi/viewcontent.cgi?article=4979&context=expresso>) (last visited Jan. 26, 2007).

466. *Id.* (stating that a programmer may be liable for patent infringement even if he independently writes a computer program whose functionality is already covered by a patent.)

ments with their competitors.⁴⁶⁷

A wise patent system should not become a burden that impedes innovation and the development of desirable business models, but that does not mean that we have to dispose of a system without having concrete evidence that it does not work.⁴⁶⁸ In the Argentine case, where local small and medium developers are the rule, patents can be very important, especially if a venture capital bill is passed.⁴⁶⁹ The Argentine software industry engaged in open source code software development should choose, whenever possible those licenses that allow patentability of their final works. The small software developers will be able to seek patent protection and therefore retain full control of their work, and, at the same time, prevent or mitigate the possible adverse effects of potential patent litigation.⁴⁷⁰

V. FINAL CONCLUSION

Adequate protection of software should include patents. There is no need to change the current Argentine law to achieve such results. The APTO and the federal courts should narrowly construe the exclusion of software in light of the Constitution, the TRIPS Agreement, and the European example. They should also only exclude software, meaning computer programs that are mere abstractions (like text or a mathematical formula) by itself.⁴⁷¹ Patentability of software should be allowed when it is new, not obvious, and has an effect, or the potential to produce an effect, on any economic activity. This is true regardless of the way the software is claimed, regardless of the purpose of the invention, and regardless of whether it produces a physical entity or a temporary concrete result.⁴⁷² Software developers should pursue the patentability of their inventions in Argentina and challenge any decision against them that are based on misconceptions of what they seek to be patented. Argentina should follow modern trends and expand the concepts of 'technical effect' and 'industrial appli-

467. See *id.* at 9-10, 19.

468. Evans & Layne-Farrar, *supra* note 436, at 71-72.

469. *Id.* at 72.

470. See New BSD License, <http://www.opensource.org/licenses/bsd-license.php> (last visited Jan. 23, 2007). For example, the only restriction in the BSD license is to retain the copyright notice.

471. See Case T-0935/97-3.5.1, Int'l Bus. Mach. Corp., Bd. of Appeal of the EPO, ¶ 9-10 (Feb. 4, 1999), available at <http://legal.european-patent-office.org/dg3/pdf/t970935eu1.pdf>.

472. Argentine Patent Law, *supra* note 1, art. 4.

cation' to encompass new technologies. There are policy and legal reasons to do so as balanced protection of computer programs under patents is a desirable tool to foster a strong software industry and to promote international trade by harmonizing patent laws.