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# Should the P.R.C. Favor Software and Business Method Patents?

X. Christina Huang

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# SHOULD THE P.R.C. FAVOR SOFTWARE AND BUSINESS METHOD PATENTS?

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## I.   INTRODUCTION

Patent rights give patent holders a monopolistic advantage by preventing competitors from using technologies covered in claimed inventions for a limited time.[1]   Further, patent rights provide an incentive to industries to invest in technology advancements.[2]   In contrast, by granting patent owners monopolies, patent rights create social costs because they increase the price of goods and services.[3]   Given these benefits and costs of patent rights, a question arises: should the People's Republic of China (hereinafter "China" or "P.R.C.") favor software and business method patents?  This article analyzes the current patent laws in the P.R.C., examines the policies crucial to this issue, and advances a recommended solution to the question.

Section II gives an overview of patent law in the P.R.C.  Section III provides the current laws for software and business method patents and gives examples of legal interpretation from the patent prosecution's perspective.   Additionally, Section III compares the laws in the P.R.C. with the laws in the United States. Section IV describes the enforcement system for software and business method patents.  Section V discusses the public policies driving the development of the Chinese patent law.  Finally, Section VI draws a conclusion that the P.R.C. should favor software and business method patents.

## II.   OVERVIEW OF PATENT LAW IN THE P.R.C.

The Patent Law of the P.R.C.[4] was established in 1984 in accordance with the Paris Convention.[5]  The law became effective in March 1985.[6]  At the time of implementation, the P.R.C.'s patent system aimed to attract advanced foreign technologies and support the development of Chinese proprietary technologies.[7] Compared with the United States' patent system, the patent system of the P.R.C.

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[1] *See* 1 R. CARL MOY, MOY'S WALKER ON PATENTS, § 1:38 (4th ed. 2010).

[2] *Id.*

[3] *See* 1 MOY, *supra* note 1, § 1:32.

[4] Zhuanli Fa (专利法)[Patent Law] (promulgated by the Standing Comm. Nat'l People's Cong., Mar. 12, 1984, effective Apr. 1, 1985) (China), *available at* http://vip.chinalawinfo.com/NewLaw2002/SLC/SLC.asp?Db=chl&Gid=1943.

[5] Paris Convention for the Protection of Industrial Property, Mar. 20, 1883, 21 U.S.T. 1583, 828 U.N.T.S. 303.  The Paris Convention aims at unified intellectual property protection across member countries. *See id.*

[6] Zhuanli Fa, *supra* note 4.

[7] *See 25 Years of Intellectual Property Protection*, CHINA DAILY (Mar. 24, 2010, 8:02 AM), http://www.chinadaily.com.cn/cndy/2010-03/24/content_9632197.htm.

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has a much shorter history.[8]  The patent system of the P.R.C. uses the first-to-file principle.[9]

Since its inception, the Patent Law has undergone three important revisions. The first revision,[10] effective in 1993, was carried out in part to meet the requirement for joining the World Trade Organization.[11]  In this first revision, the duration of patent rights was changed from fifteen years to twenty years.[12]  The second revision became effective in 2001.[13]  Its purpose was to conform to the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs).[14] One of the efforts to conform to TRIPs required adding offer for sale to the list of activities that constitute infringement of the patent right.[15]

The third revision of the Patent Law of the P.R.C. became effective in 2009[16] and placed strategic emphasis on encouraging indigenous innovation.[17]  One

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[8] The first patent act of the United States was effective in 1790. *See* 1 MOY, *supra* note 1, § 1:18.  The first Chinese Patent Law was effective in 1985. *See* Zhuanli Fa, *supra* note 4.

[9] *See* Zhuanli Fa, *supra* note 4, art. 9 (stating that a patent will be granted to the applicant who files first if more than one applicant files a patent application on the same invention).

[10] *See* Zhuanli Fa (专利法)[Patent Law] (promulgated by the Standing Comm. Nat'l People's Cong., Sep. 4, 1992, effective Jan. 1, 1993) (China).

[11] Zhuali Fa Diyici Xiugai de Shuoming (专利法第一次修改的说明) [The Rationale of Changes in the First Revision of the Patent Law], (published online on Dec. 28, 2006), *available at* http://www.sipo.gov.cn/zxft/zlfdscxg/bjzl/200804/t20080419_383843.html (stating that China was applying to become a member of the World Trade Organization and revising the patent law was necessary for meeting the harmonization requirements in patent protection).

[12] *See* Zhuanli Fa, *supra* note 10, art. 45 (stating that the duration of the patent right for inventions shall be twenty years from the filing date); Zhuanli Fa, *supra* note 4, art. 45 (stating that the duration of the patent right for inventions shall be fifteen years from the filing date).

[13] *See* Zhuanli Fa (专利法)[Patent Law] (promulgated by the Standing Comm. Nat'l People's Cong., Aug. 25, 2000, effective July 1, 2001) (China) [hereinafter Patent Law of China 2001].

[14] Zhuali Fa DiErci Xiugai de Shuoming, (专利法第二次修改的说明), [The Rationale of Changes in the Second Revision of the Patent Law], (published online on Dec. 28, 2006), *available at* http://www.sipo.gov.cn/zcfg/zcjd/200804/t20080403_369374.html (stating that it was necessary to revise the Chinese Patent Law to process patent applications entered into China via PCT filings according to the TRIPs Agreement).

[15] *See* Patent Law of China 2001, *supra* note 13, art. 10 (stating that no entity or individual may, without the authorization of the patentee, exploit the patent, that is, make, use, offer to sell, sell or import the patented product, or use the patented process, and use, offer to sell, sell or import the product directly obtained by the patented process, for production or business purposes).

[16] Zhuanli Fa (专利法)[Patent Law] (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 27, 2008, effective Oct. 1, 2009) (China) [hereinafter SIPO 2009].

[17] Guojia Zhishichanquanju dui Zhanlifa Disanci Xiugai de Zhuyao Jianyi, (国家知识产权局对专利法第三次修改的主要建议), [State Intellectual Property Office's Recommendation to the Third Revision of Patent Law], (published online on Dec. 28, 2006), *available at* http://www.sipo.gov.cn/zcfg/zcjd/200804/t20080403_369374.html (stating that the patent system

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objective for the third revision was to promote high-quality inventions by domestic persons or entities. However, international companies raised concerns about this revision because Chinese domestic entities would be granted significant competitive advantages.[18]

### A.      Relevant Institutions and Procedure

#### 1.  Institutions and Procedures Related to Obtaining Patent Rights

The P.R.C. has three categories of patents: invention patents, utility model patents, and design patents.[19] Invention patents provide patent protection for up to twenty years from the filing date or the priority date if a priority date is claimed.[20] Utility model patents and design patents, however, provide patent protection for only ten years.[21]

The State Intellectual Property Office (SIPO) of the P.R.C. is the sole institution that accepts and examines patent applications and grants patent rights to applicants.[22] The patent examination process includes two types of examinations: preliminary examination and substantive examination.[23]

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should encourage China's indigenous innovation and facilitate China's economic and social development).

[18] For example, several articles raise concerns for detrimental impact on foreign companies due to the government procurement policy favoring domestic vendors. *See* Stanley Lubman, *China's 'Indigenous Innovation' Policy Creates Obstacles for Foreign Business*, WALL ST. J., Apr. 7, 2010, *available at* http://blogs.wsj.com/chinarealtime/2010/04/07/stanley-lubman-chinas-indigenous-innovation-policy-creates-obstacles-for-foreign-business/tab/article/; Andrew Browne & Loretta Chao, *U.S. Firms Feel Shut Out in China*, WALL ST. J., Mar. 22, 2010, *available at* http://online.wsj.com/article/SB10001424052748704454004575135313221347420.html.

[19] SIPO 2009, *supra* note 16, art. 2 (stating that the Chinese Patent Law grants three types of patents: invention patents, utility model patents, and design patents).

[20] SIPO 2009, *supra* note 16, art. 42 (stating that invention patents are valid for 20 years from the filing date); *id.* art. 28 (stating that the filing date shall be the date that the Patent Office receives the patent application or the mailing date if the application is submitted by mail); Zhonghua Renming Gonghe Guo Zhuanli Fa Shishi Xize (中华人民共和国专利法实施细则) [Implementing Regulations of the Patent Law of the People's Republic of China] (promulgated by State Council of the People's Republic of China, Dec. 31, 2009, effective Jan. 9, 2010), art. 11 (China) [hereinafter The Implementing Regulations], *available at* http://www.sipo.gov.cn/zcfg/flfg/zl/fljxzfg/201001/t20100122_488461.html (stating that the filing date shall be the priority date if such priority is claimed).

[21] SIPO 2009, *supra* note 16, art. 42 (stating that utility model patents and design patents are valid for 10 years from the filing date).

[22] SIPO 2009, *supra* note 16, art. 3 (stating that the State Intellectual Property Office is the sole institution to receive, process, and allow patent applications).

[23] *See generally* Zhuanli Shencha Zhinan (专利审查指南) [Guidelines for Patent Examination] [hereinafter Guidelines for Patent Examination 2010] (promulgated by Stat. Intel. Prop. Off., 2010)

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Preliminary examination determines whether a patent application has formatting or obvious substantive defects.[24] It is conducted before the patent application is published.[25] If an application passes the preliminary examination and the applicant requests substantive examination, then the SIPO's Substantive Examination Department conducts a substantive examination.[26] Substantive examination is required for invention patents but not for utility model patents or design patents.[27] If a patent application is rejected by either examination, the patent applicant may submit a reexamination request.[28]

A reexamination request is submitted to the Patent Reexamination Board (hereinafter referred as "the Board"), which is an organization dedicated to patent reexamination and invalidation proceedings in the SIPO.[29] The Board usually appoints three-person or five-person panels to conduct patent reexaminations.[30] Panel members are experienced examiners or legal staff in the SIPO office.[31] A patent reexamination decision is based on the panel members' majority opinion.[32] Importantly, since 1988 the Board decisions have been published.[33]

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(China), *available at* http://www.sipo.gov.cn/zlsqzn/sczn2010.pdf (providing guideline for patent examination including preliminary examination and substantive examination).

[24] *See id.* (listing the steps involving preliminary examinations).

[25] *See id.* at pt. I, ch. 1 (stating that preliminary examination is a necessary step before a patent application is published).

[26] *See id.* at pt. II, ch. 9 (providing the substantive examination procedure).

[27] SIPO 2009, *supra* note 16, art. 40 (providing that the utility model patents and design patent shall be granted if they are not rejected in preliminary examination).

[28] *See id.* art. 41 (stating that a patent applicant may submit a reexamination request within three months from the date of receiving an examination rejection from the preliminary examination and substantive examination).

[29] *See id.* (stating that SIPO establishes the Patent Reexamination Board to conduct patent reexamination).

[30] *See* Guidelines for Patent Examination 2010, *supra* note 23, pt. IV ch. 1 §§ 3, 4 (2010) (stating that the Patent Reexamination Board will generally appoint three or five examiner panels to provide patent reexamination for complex cases and but can appoint one person panels for simple cases).

[31] *See id.* pt. IV, ch. 1 (stating that each member of a patent reexamination panel is an experienced patent examiner).

[32] *See id.* pt. IV, ch. 1 § 3 (stating that patent reexamination decisions shall be based upon majority opinions of the panel).

[33] *See id.* pt. IV. ch. 1 § 2 (stating that patent reexamination board decision shall be published, except applications under a secrecy order); A search result on April 3, 2011, from http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp, indicates that one of the earliest decisions, FS22, was decided on Feb. 23, 1988.

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If the Board rejects a patent application, the patent applicant may appeal the Board's decision to Beijing's First Intermediate People's Court.[34] However, in doing the research for this article, and at the time of its writing (March 2011), the author uncovered no court judgment reversing a reexamination decision. While there are speculations on the sophistication of the Chinese Patent Office, this research has found that the Board's decisions usually apply patent laws consistently.[35]

### 2. *Institutions and Procedures Related to Patent Enforcement*

When a patent owner finds his patent rights infringed, he or she may file a complaint in a local intermediate people's court.[36] The intermediate people's court's decision can be appealed to the higher people's court up to the highest people's court. Upon receiving the complaint, the accused infringer may initiate a patent invalidity proceeding in the Patent Reexamination Board.[37] With its reexamination decisions, the Board publishes patent invalidity decisions.[38] The accused infringer may request an oral proceeding to the Patent Reexamination Board.[39] The Board decides whether an oral proceeding is necessary, basing its decision on requests for cross-examination, witness testimony, demonstrating a physical object, and other factors.[40] Similar to the reexamination proceeding, an invalidity decision is appealable to Beijing's First Intermediate Court.[41]

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[34] *See* SIPO 2009, *supra* note 16, art. 46 (stating that a patent applicant may appeal to a people's court within three months from the date of receiving a rejection from the Reexamination Board).

[35] This research analyzed more than 400 patent reexamination or invalidity decisions on software and business method patent applications and found that these decisions applied the Chinese patent law consistently; s*ee also infra* Section III.

[36] *See* Zhigao Renmin Fayuan Guanyu Shenli Zhuanli Jiufen Anjian Shiyong Falu Wenti de Ruogan Guiding (最高人民法院关于审理专利纠纷案件适用法律问题的若干规定) [Rules on Patent Dispute Procedure from the Supreme People's Court] (promulgated by the Supreme People's Court on June 22, 2001, effective on July 1, 2001) (China), *available at* http://web.mmc.edu.cn/shekebu/faxue/zhshchq/LinkedDocuments/jieda.doc (stating that patent dispute cases must be brought to the intermediate people's courts).

[37] *See* SIPO 2009, *supra* note 16, art. 45 (stating that any person or entity may initiate a patent invalidation proceeding after the patent is issued).

[38] The Patent Reexamination Board decisions can be found at the following website: http://www.sipo-reexam.gov.cn/.

[39] *See* The Implementing Regulations, *supra* note 20, art. 70 (stating that the Patent Reexamination Board may conduct an administrative hearing if such oral proceeding is requested or necessary based on related facts).

[40] *See id.*; Guidelines for Patent Examination 2010, *supra* note 23, pt. IV, ch. 4, § 2 (stating that a party of a patent invalidation proceeding may request oral proceeding based upon one of the following reasons: (1) one of the parties requests for face-to-face cross examination of evidence

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Another venue to enforce a patent right is through an administrative proceeding.[42] A patent owner may file a complaint in a local intellectual property office.[43] The administrative agency, by an order, may enjoin an accused infringer but cannot grant damages to a patent owner.[44] Administrative orders can be appealed to the corresponding higher people's court.[45]

*B.       Statistical Data of Patents in the P.R.C.*

As the P.R.C. becomes one of the most important markets in the world, more and more patent applications are filed there. From 1984 to February 2010, 5,945,970 patent applications have been filed, and 3,164,783 patents have been issued.[46] In 2009 alone, 976,686 patent applications were filed in the Chinese SIPO.[47] Among those applications, Chinese domestic persons and entities filed 877,611 patent applications, and foreign persons and entities filed 99,075 patent applications.[48]

By the end of 2009, 1,520,023 patents were granted and remained valid: Chinese domestic inventors had filed 1,193,110 patents, and foreign inventors had

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and debate with the opposite party; (2) there is a need to explain facts to the panel; (3) there is a need to demonstrate a physical object; or (4) there is a need to call a witness giving evidential statement to provide testimony, and a patent applicant may request oral proceeding based upon one of the following reasons: (1) there is a need to explain facts or provide rationale for patentability of the application to the panel; or (2) there is a need to demonstrate a physical object).

[41] *See* Zuigao Renmin Fayuan Guanyu Shenli Zhuanli Jiufen Anjian Shiyong Falu Wenti de Ruogan Gueiding, *supra* note 36, art. 2 (stating that the high people's courts shall be appellate courts for patent dispute cases including the Patent Reexamination Board's decisions).

[42] *See generally* Zhuanli Xingzheng Zhifa Banfa (专利行政执法办法) [Regulations on Patent Enforcement Administrative Proceeding] (promulgated by the State Intellectual Property Office, Dec. 29, 2010, effective Feb. 1, 2011) (LawinfoChina) (China) (providing procedural rules for administrative proceedings).

[43] *See id.* ch. 3 (stating that a patent infringement petition may be submitted to a local intellectual property office with a proper format including the information on petitioner's name, address).

[44] *See id.* ch. 6 (stating that the infringer's action will be enjoined and the infringer shall destroy the entire inventory of infringing products).

[45] *See* Zhuigao Renmin Fayuan Guanyu Shenli Zhuanli Jiufen Anjian Shiyong Falu Wenti de Ruogan Guiding, *supra* note 36, art. 1 (stating that the people's court shall accept cases appealing to the administrative proceeding).

[46] *See* Guojia Zhishi Chanquanju Zhuanli Yewu Gongzuo ji Zhouhe Guanli Tongji Yuebao (国家知识产权局专利业务工作及综合管理统计月报) [SIPO Patent Application and Management Monthly Statistics], statistics of February 2010, http://www.sipo.gov.cn/tjxx/ (China).

[47] *See Domestic and Foreign Patent Applications Accepted Status Chronology: 2009 January - December 2009*, ST. INTELL. PROP. OFF. P.R.C., http://www.sipo.gov.cn/ghfzs/zltj/gnwszslnb/2009/201001/t20100121_488329.html (last visited Feb. 18, 2012).

[48] *See id.*

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filed 326,913 of these patents.[49]   In the computer technology and computer management area, 30,893 patents were granted and remained valid.[50]  Chinese domestic inventors, however, filed a much higher percentage of utility model and design patents than foreign inventors.[51]   Invention patents have a longer protection period, 20 years, and are subject to both preliminary examination and substantive examination.[52]   Utility model patents and design patents have a shorter protection period, 10 years, and are subject to only preliminary examination.[53]  The lower percentage of valid utility model patents contrasted with total patents held by domestic inventors, to some degree, indicates that the average quality of inventions of domestic inventors is lower.  That foreign entities filed fewer utility model patents, on the other hand, may indicate that foreign entities are not familiar with patent protection of utility model patents in the P.R.C.  Figure 1 illustrates the number of granted patents held by the top ten countries.

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[49] *See id.*

[50] *See* Zhuanli Tongji Jianbao (专利统计简报) [Patent Statistics Gazette] No. 81 (2010), http://www.sipo.gov.cn/ghfzs/zltjjb/ (China).

[51] *See, e.g., id.* (providing that 16.4% of valid patents of domestic patent owners are invention patents and 78.9% of valid patents of foreign patent owners are invention patents at the end of 2009).

[52] *See* SIPO 2009, *supra* note 16, art. 42.

[53] *See* The Implementing Regulations, *supra* note 20, art. 70.

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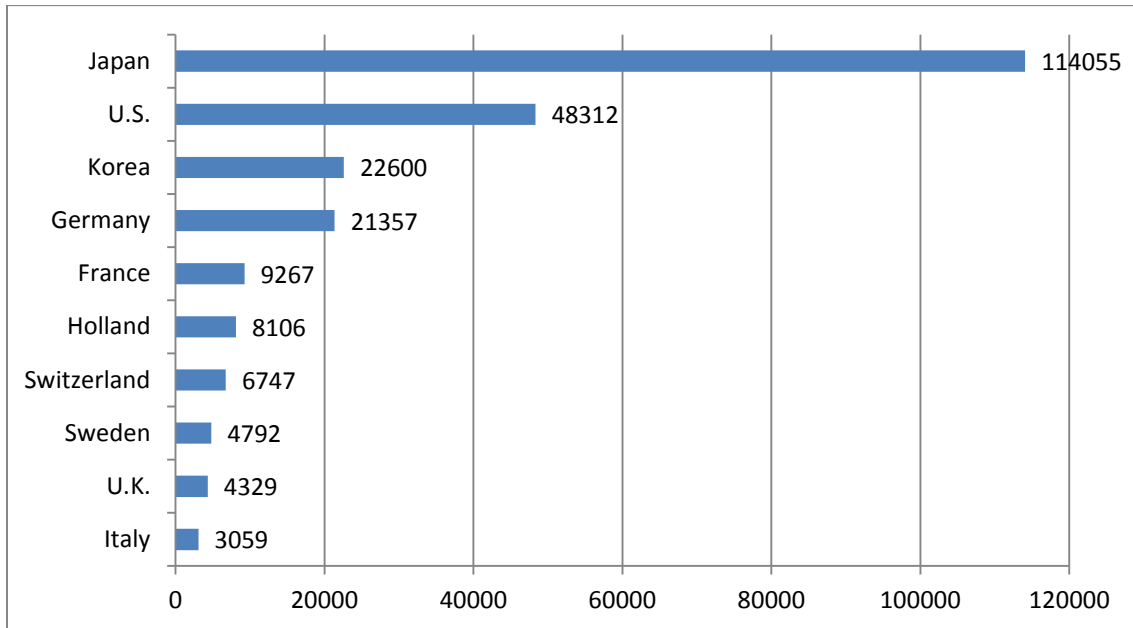                      AND BUSINESS METHOD PATENTS?

**Figure 1[54]**

III.    SOFTWARE AND BUSINESS METHOD PATENT LAW

The world is going digital and is increasingly interconnected. Software, which is usually a key component of a system or device, enters into every business entity and every individual's life. Business entities also use business methods in their day to day operations. Business methods refer to the ways and processes in which to conduct business, such as financial services, internet business transaction processes, or operating procedures in health care systems. Business methods are closely related to software because they typically utilize software and computer systems to implement business processes and attain business objectives. In balancing the reliance on the patent system to promote technological development related to software and business methods with the prevention of monopolies of business entities, the Chinese government has carefully chosen its position.

The following subsections will discuss Chinese patent law in comparison with United States patent law from several perspectives. For each patentability requirement discussed below, this article will discuss its statutory requirement, the relevant sections in the Guidelines for Patent Examination, and several related

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[54] *See* Zhuanli Tongji Jianbao, *supra* note 50, No. 81.

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decisions from the Patent Reexamination Board.  Additionally, this article will compare patentability requirements between Chinese and the United States.[55]

In addition to patent protection, the intellectual property system in the P.R.C. encourages the use of copyright for software protection.  While copyright has a smaller scope of protection, it is easier to obtain than a patent.  Thus, business entities in the P.R.C. often first register their software for copyright protection and then consider patent protection.

*A.       Requirements for Description*

A patent application filed in the P.R.C. contains several sections: the technical field, the description of the invention, the claims, the figures, the description of the figures, the detailed description of the invention, and some other optional sections.[56]  The description requirement and the adequate support requirement for claims will be discussed in this section.

*1.  The Statutory Requirement*

Article 26 of P.R.C.'s Patent Law requires that a patent description must set forth the invention in a manner sufficiently clear and complete so as to enable a person skilled in the art to implement it.[57]  In other words, people skilled in the art must be able to implement the invention according to the description section in the patent application.  Additionally, Article 26 requires that patent claims both be supported by the description and define the extent of patent rights.[58]

In the Implementing Regulations of the Patent Law, Rule 18 contains specific requirements for the sections involving the technical field, the background, the detailed description of invention, and the description of figures.[59]  Under Rule 18, the detailed description of invention section must describe both the technical problem and the technical solution chosen to solve the technical problem.[60]  In addition, it is preferable to describe the advantage or improvement of the present

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[55] The research relied on for this article analyzes more than 400 patent reexamination or invalidity decisions on patent applications related to software and business methods.  The Board publishes patent reexamination and invalidity decisions on its website: http://www.sipo-reexam.gov.cn.  This research is based on patent applications, patent office decisions, court decisions, regulations, and statutes written in Chinese, except the patent applications filed in the United States and relevant prosecution histories.

[56] *See* Zhonghua Renming Gonghe Guo Zhuanli Fa Shishi Xize, *supra* note 20, art. 17.

[57] *See* SIPO 2009, *supra* note 16, art. 26.

[58] *See id.*

[59] *See* The Implementing Regulations, *supra* note 20, art. 17.

[60] *See id.*

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invention compared to existing technology. [61]    Furthermore, the detailed description of the invention must disclose the optimal mode of implementing the present invention, using examples if appropriate.[62]

### 2. The Guidelines for Patent Examination

The Guidelines for Patent Examination[63] define "people skilled in the art" as a person who possesses all common technical knowledge in the field, has access to existing technologies, and is capable of performing routine experiments in the relevant technical field before the filing date or priority date.[64]

According to the Guidelines, the Patent Law Article 26 [65] has three requirements: clarity, completeness, and enablement. [66]    First, the clarity requirement provides that the description shall have clear subject matter, which means that the technical problem, technical solution, and advantageous technical effects must be described in the application, and they must be consistent with each other and relevant to the claimed subject matter.[67]

Second, the completeness requirement states that the level of detail for the application specification must satisfy three requirements: (1) sufficient disclosure that assists the understanding of the invention; (2) sufficient support to satisfy the requirements of novelty, innovative step, and utility; and (3) sufficient disclosure on mechanics to implement the technical solution identified by the invention.[68]

Third, the enablement requirement provides that the application must enable a person skilled in the art to implement the invention.[69]  In other words, the person skilled in the art can, in accordance with the description, implement the technical solution of the invention, solve the technical problem, and achieve the expected technical effects.  In addition, Article 26 of the P.R.C.'s Patent Law requires that the application completely disclose the technical content for understanding and

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[61] *See id.*

[62] *See id.*

[63] *See* Guidelines for Patent Examination 2010, *supra* note 23.

[64] According to the Chinese Patent Law (2009), the filing date is the date when the State of Patent and Trademark Office receives the patent application or the post-mark date if patentee submits the patent application by mail.  According to the China Patent Law (2009), the priority date is the date when a patent application is filed in a country outside of the People's Republic of China and is claimed priority in a timely manner.

[65] *See* SIPO 2009, *supra* note 16, art. 26.

[66] *See* Guidelines for Patent Examination 2010, *supra* note 23, pt. II, ch. 2.

[67] *See id.*

[68] *See id.*

[69] *See id.*

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implementing the invention.[70]  For example, if the claimed invention is a technical solution comprising multiple technical means and one of the technical means cannot be implemented according to the description, the application does not meet the enablement requirement.

Chapter 9 of the Guidelines addresses specific requirements in drafting software-related patent applications.[71]  For example, a principal flowchart of the software must be included.[72]  The flowchart and its accompanying explanation must enable people skilled in the art to implement software that achieves the same technical effects as the invention.[73]  If an invention includes changes to hardware, a diagram with hardware modules must be supplied with a clear and complete description of each module and its relationship with other modules.[74]

### 3.  Patent Reexamination Board Decisions

In a patent invalidation proceeding for "RSS message interactive processing method based on XML file,"[75] the Board evaluated the description section of the patent application from three perspectives.[76]  First, Article 26 states that if a patent application provides clear and complete technical content to the extent of enabling implementation by people skilled in the art, it is valid.[77]  The patent invalidation petitioner argued that the term "software application" in a claim was neither clear nor provided complete technical content.[78]  In response, the Board concluded that the description enabled people skilled in the art to implement the software application, because the description disclosed steps of the software application, including starting the procedure, receiving input of terminal information, transmitting terminal information via HTTP protocol, analyzing RSS

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[70] *See id.*

[71] *See* Guidelines for Patent Examination, *supra* note 22, pt. II, ch. 9.

[72] *See id.* pt. II, ch. 9, § 5.1.

[73] *Id.*

[74] *Id.*

[75] China Patent Application No. 200510022721.3 (filed Dec. 23, 2005) (Chinese Published Application No. 1913522A).

[76] SIPO, Patent Reexamination Decision No. WX12927 (2009), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "WX12927" into the search field labeled "决 定 号, " hit enter and then select the URL labeled "WX12927").

[77] Patent Law of China 2001, *supra* note 13, art. 26.  Many of the Patent Reexamination Board decisions were made based on the second revision of the Patent Law.

[78] *See* Patent Reexamination Decision No. WX12927, *supra* note 76.

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information, and obtaining RSS data.[79]  Therefore, the Board held that the description was clear and complete in supporting the claim.[80]

In its second perspective, the Board reasoned that if a claim used a term that was specified in the description and provided clear limitation to the scope of the claim, it was valid under Article 26.[81]  Hence, the Board held that "terminal information" was specified as the user name and password information in the description section of this patent application, so the use of terminal information in the claims was permitted.[82]

In its third perspective, the Board considered that if people skilled in the art were able to obtain the technical solution claimed by the patentee, the description section sufficiently supported the claim.[83]  In this patent application, the Board concluded that the steps of "installing software application on a terminal and transmitting terminal information" in the claim were described with adequate specification.[84]  Hence, the claim was sufficiently supported by the description section and should not be invalidated.[85]

In addition, in a patent reexamination proceeding for "Method and System for Storing and Distributing Electronic Content,"[86] the Board held that a patent claim was invalid when either (1) the technical solution in the claim was different from what was disclosed in the patent description, or (2) the claimed technical solution could neither solve the technical problem nor obtain technical effects that were disclosed in the patent description.[87]  The Board concluded that the technical problem in the application was to improve browsing speed in a mobile environment.[88]  The technical solution provided in independent claim 1, according to the opinion, was a method for distributing electronic content, which included a step to transmit selected electronic content to the wireless terminal through a

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[79] *See id.*

[80] *See id.*

[81] *See id.*

[82] *See id.*

[83] *See* Patent Reexamination Decision No. WX12927, *supra* note 76.

[84] *See id.*; China Patent Application No. 200510022721.3 (filed Dec. 23, 2005) (Chinese Publication No. 1913522A) (translated from the patent application and the Board opinion by the author).

[85] *See* Patent Reexamination Decision No. WX12927, *supra* note 76.

[86] China Patent Application No. 01820910.6 (filed Nov. 27, 2001) (Chinese Publication No. 1481537) (published Mar. 10, 2004).

[87] *See* SIPO, Patent Reexamination Decision No. FS14570 (2008), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS14570" into the search field labeled "决　定　号," hit enter and then select the URL labeled "FS14570").

[88] *See id.*

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wireless network.[89]  The Board further concluded, however, this step was not disclosed in the patent description.[90]  Instead, the patent description disclosed a method of copying selected search content to a terminal device from a memory card after the content was downloaded to the memory card.[91]  Therefore, the Board held that the patent application did not meet the statutory requirements for description by failing to solve the technical problem.[92]

In summary, in order to satisfy the enablement requirement under Chinese Patent Law, a patent application's detailed description section must enable people skilled in the art to implement the disclosed technical solution.  Further, the disclosed technical solution must solve the technical problem corresponding to a claimed invention.

### 4.  Comparison with the Enablement Requirement in United States

The Chinese patent system uses central claiming, similar to the European patent system.  The U.S. patent system uses peripheral claiming.[93]  Generally speaking, the patent system in the P.R.C. requires more specific support in the description section for a given claim.

In a patent reexamination proceeding, the Board held that the patent application "Improving the Portability of Digital Images"[94] was invalid under Article 26[95] for the following reasons: (1) the term "abstract machine," which was used in both description and claims, did not have a supporting module diagram to explain its functionality; (2) the term "image method" which was claimed to be able to transform an image of various types and formats to a common format, did not have a supporting flowchart describing how the image method transforms an image from its original format to a common format; (3) the technical contents of "abstract machine" and "image method" were not commonly known to people skilled in the art; and (4) the application description provided functional

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[89] *See id.*

[90] *See id.*

[91] *See id.*

[92] *See* Patent Reexamination Decision No. FS14570, *supra* note 87.

[93] *See* 1 MOY, *supra* note 1, § 1:21 (stating that under a central claiming system, the scope of a claimed invention is primarily defined by the description in the patent application; under a peripheral claiming system, the scope of a claimed invention is primarily relying on the literal meaning of the words used in the claim).

[94] *See* China Patent Application No. 200910174921.9 (filed Aug. 17, 1999 and claimed priority of Aug. 27, 1998) (Chinese Published Application No. 1017149A) [hereinafter Portability Patent]; U.S. Patent No. 7,010,177 (filed Aug. 27, 1998).

[95] *See* Patent Law of China 2001, *supra* note 13, art. 26.

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description of "abstract machine" and "image method" but it did not disclose the necessary technical means to realize them.[96]

The patent application contained an overall flowchart describing the image data processing system.[97] However, the abstract machine and image methods were not described with any flowchart or diagram.[98] Instead, the abstract machine only gave an example that it could be a virtual machine without any further description.[99] The term "image method" was defined as "a program or list of instructions to be executed by the virtual machine for translating the image data from the native format to a predefined common format."[100] The simplest image method was a byte-to-byte copy of the original image.[101] The image method used an algorithm for image data translation that was "either well known or c[ould] be easily developed by those of ordinary skill in the art."[102] No additional support was given.[103] While the patent application was rejected in the P.R.C., a patent application from the same patent family[104] was granted in the United States. The office actions issued by the U.S. Patent Office did not have a written description rejection.[105]

## B.    Patentable Subject Matter

Software per se and business methods per se, categorized as mental activities, are not patentable in the P.R.C. The Chinese government recognizes patents as incentives for technology development. Consequently, software and business methods are patentable only if they solve a technical problem, provide a technical solution, and obtain technical effects. This subsection will analyze and illustrate the scope of patentable software and business methods inventions.

### 1.    The Statutory Requirement

Two sections in the Patent Law address the requirement for patentable subject matter. First, under Article 2.2, an invention is defined as a new technical

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[96] *See* SIPO, Patent Reexamination Decision No. FS17871 (2009), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS17871" into the search field labeled "决　定　号," hit enter and then select the URL labeled "FS17871").

[97] *See* Portability Patent, *supra* note 94.

[98] *See id.*

[99] *See id.*

[100] *See* Portability Patent, *supra* note 94 col. 3, ln. 50–53.

[101] *See id.*

[102] *Id.* col. 5.

[103] *Id.*

[104] U.S. Patent No. 7,010,177 (filed on Aug. 27, 1998).

[105] See the file wrapper of the patent prosecution for U.S. Patent No. 7,010,177, for a further discussion.

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solution relating to a product, to a process, or to improvement of a product.[106] Second, under Article 25.2, rules and methods of mental activities are not patentable.[107]

### 2.  The Guidelines for Patent Examination

A separate chapter about patent examination of software patent applications was added to the Guidelines in 2001.[108] According to the 2001 Guidelines, an invention is not patentable subject matter if the invention's contribution to technology only involves the rules and methods of mental activities.[109]

In 2006, the Guidelines were amended again.   The provisions on patent examination of software patent applications changed significantly.  According to the 2006 Guidelines, a claim that merely relates to an algorithm, mathematical computing rules, computer programs per se, computer programs recorded in mediums, or rules or methods for games is not patentable subject matter.[110] However, a claim comprising not only rules and methods for mental activities but also technical features may not be excluded from patentability under Article 25.[111] The 2006 Guidelines define a much broader scope of patentability for software and business methods related inventions.  Compared with the 2001 Guidelines, the 2006 Amendment does not require that a claim be patentable only if the technology contribution of the invention partially or wholly resides in statutory subject matter.[112]

The general requirements for patentable subject matter apply to software and business method related patent applications.[113]  That is, an invention is patentable subject matter if it provides a technical solution satisfying the Implementing Regulations, Rule 2,[114] so that it solves technical problems, utilizes technical

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[106] SIPO 2009, *supra* note 16, art. 2.2 (this provision was originally in the Implementing Regulations of the Patent Law); Zhonghua Renming Gonghe Guo Zhuanli Fa Shishi Xize (中华人民共和国专利法实施细则) [Implementing Regulations of the Patent Law of the People's Republic of China] (promulgated by  State Council of the People's Republic of China, Dec. 28, 2002), r. 2 [hereinafter Implementing Regulations 2002].

[107] The Implementing Regulations, *supra* note 20, art. 25.2.

[108] *See* Patent Law of China 2001, *supra* note 13, pt. II, ch. 9.

[109] *Id.* pt. II, ch. 1, §§ 3.2.

[110] Zhuanli Shencha Zhinan (专利审查指南) [Guidelines for Patent Examination] (promulgated by the State Intellectual Property Office, 2006), pt. II, ch. 9, § 2 (China) [hereinafter Guidelines for Patent Examination 2006].

[111] *Id.*

[112] *See id.*

[113] *See id.*

[114] Implementing Regulations 2002, *supra* note 106, r. 2.

means in conformity with the laws of nature, and obtains technical effects in accordance with the law of nature.[115]  Particularly, the 2006 Guidelines point out that a technical solution using software without hardware changes may be patentable.[116]

The 2006 Guidelines list several types of technical solutions satisfying Rule 2[117] that are entirely or partially based on computer programs.[118]  First, a claimed invention is patentable if its technical solution uses software to control and process external or internal objects and obtains technical effects in conformity with the laws of nature.[119]  The control and process of external objects includes both controlling external process or devices and processing or exchanging external data.[120]  The control and process of internal objects include improving performance of computer systems and managing internal resources.[121]

Second, a claimed invention is patentable if the invention provides a technical solution that executes software to process and transform data according to the laws of nature.[122]  Third, an invention is a patentable subject matter if the invention provides a technical solution to improve computer performance by executing software that is a realization of algorithms according to the laws of nature.[123]

In 2010, the Guidelines were amended again.  However, the chapter on patent examination of software patent applications remained unchanged.[124]

### 3.  Patent Reexamination Board Decisions

As mentioned above, the patentability of inventions related to software and business methods is a highly controversial area.  The Patent Reexamination Board provided its interpretations in the following selected reexamination decisions. The decisions are selected to address two aspects of the requirements for patentable subject matter: technical solution and conformity with the laws of nature.

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[115] *See* Guidelines for Patent Examination 2006, *supra* note 110, pt. II, ch. 9, § 2.
[116] *Id.* pt. II, ch. 9, § 1.
[117] Implementing Regulations 2002, *supra* note 106, r. 2.
[118] *See* Guidelines for Patent Examination 2006, *supra* note 110, pt. II, ch. 9, § 2. .
[119] *See id.*
[120] *See id.*
[121] *See id.*
[122] *See id.*
[123] *See id.*
[124] Guidelines for Patent Examination 2010, *supra* note 23, pt. II, ch. 9.

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### a. Technical Solution

A claimed invention must provide a technical solution to be patentable.  In a patent reexamination proceeding, an invention of "speech machine translation" was held to be patentable.[125]  The patent application, "Apparatus and Method for Converting a Spoken Language to a Second Language," claimed a speech translation system.[126]  The claimed speech translation system comprised a speech input device, speech recognition device, and conversion object selection interface.[127]  The technical problem was to reduce storage space required for the dictionary used for speech translation.[128]

According to the Board's interpretation, the technical means of the present invention first allowed manual or automatic selection of a subject area for original language (such as medicine).[129]  Next, the disclosed technical means provided a list of candidate translations in the target language, it accepted users' selection from the candidate translations, and it transformed the selected words into speech.[130]  By categorizing the speech into subject areas and selecting translated words from a list of candidates, this invention was capable of correcting speech recognition error and making accurate translations with a dictionary of limited size. [131]  The Board concluded that the claimed invention improved the functionality of a speech translation system, so it achieved technical effects under the patent law.[132]  Therefore, the solution provided by the invention, as a whole, was a technical solution.[133]

### b. Conformity with the Laws of Nature

A claimed invention must disclose a technical solution that employs technical means and achieves technical effects to be patentable.  Chinese Patent Law further requires that the technical means accord with the laws of nature, and the technical effects follow the laws of nature. [134]  For example, in the patent

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[125] SIPO, Patent Reexamination Decision No. FS17849 (2009), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS17849" into the search field labeled "决 定 号," hit enter and then select the URL labeled "FS17849").

[126] China Patent Application No. 02106838.0 (filed Jan. 24. 2002) (Chinese Publication No. 1369834) (published Sept. 24, 2002); U.S. Patent No. 7,050,979 (filed Jan. 24, 2002).

[127] *See id.*

[128] *See id.*

[129] *See* Patent Reexamination Decision No. FS17849, *supra* note 125.

[130] *See id.*

[131] *See id.*

[132] *See id.*

[133] *See id.*

[134] *See* Guidelines for Patent Examination 2006, *supra* note 110, pt. II, ch. 9, § 2.

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application "Communication Device, communication system, communication method and recording medium,"[135] independent claim 1 was to protect a communication system using two communication devices. The first device generated rental request information and transmitted the information to the second device.[136] The second device received the rental request information and stored the rental information in a storage medium. As disclosed in the patent description, the problem to be solved by the invention was to allow a customer to rent the desired media without going to a rental store. In a patent reexamination proceeding about this application, the Board held the following: (1) as devices in the technical solution were commonly known, the technical solution did not realize technological improvement; (2) the employed means followed human-defined rental rules, which were not in conformity with the laws of nature; therefore (3) the invention did not provide a technical means under Chinese Patent Law.[137] As such, the claimed invention was not patentable subject matter.

A number of reexamination decisions stated that if the means employed by an invention followed human-defined rules or protocol, then the means neither were in conformity with the laws of nature nor were technical means under the Patent Law.[138] In addition, if the accomplished effects for a patent application were to fulfill the expectation of people, such as customers, users, or operators, the effects did not follow the laws of nature and were not technical effects under the Patent Law.[139] Business method patent applications were often rejected on the ground

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[135] China Patent Application No. 01137961.8 (filed Sept. 25, 2001) (Chinese Publication No. 1346114) (published Apr. 24, 2002); U.S. Patent Application No. 2007/004364 (filed Oct. 30, 2006).

[136] *See id.*

[137] SIPO, Patent Reexamination Decision No. FS9635 (2006), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS9635" into the search field labeled "决 定 号," hit enter and then select the URL labeled "FS9635").

[138] *See* Patent Reexamination Decision No. FS9635, *supra* note 137; SIPO, Patent Reexamination Decision No. FS16085 (2008), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS16085" into the search field labeled "决 定 号," hit enter and then select the URL labeled "FS16085"); SIPO, Patent Reexamination Decision No. FS13080 (2008), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS13080" into the search field labeled "决 定 号," hit enter and then select the URL labeled "FS13080"); SIPO, Patent Reexamination Decision No. FS16251 (2009), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS16251" into the search field labeled "决 定 号," hit enter and then select the URL labeled "FS16251").

[139] *See* Patent Reexamination Decision No. FS9680, *supra* note 137; SIPO, Patent Reexamination decision No. FS16581 (2009), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS16581" into the search field labeled "决 定 号," hit enter and then select the URL labeled "FS16581").

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that the technical means employed or the technical effects achieved were not in conformity with the laws of nature.

A patent application, "Music Data Distribution System and Method,"[140] exemplified how business method patents may use technical means in accordance with the laws of nature. The problem to be solved by this invention was to reduce data storage volume required for a music delivery device, so it was a technical problem regarding data storage.[141] To reduce storage volume, this invention used a music quality converter module, which was not used by existing technology, to convert a piece of music to a piece with desired music quality based on a delivery request.[142] A delivery request might include information on the type of terminal for playing music.[143] The technical means for the music quality converter were based on a conversion table that defined the music quality, such as pitch and tone, so the means were in accordance with the laws of nature.[144] Although this invention was a business method that could be used for delivering music with a price scheme based on requested music quality, the claimed invention was patentable subject matter because it employed a technical solution.[145]

### 4.   Comparison with Patentable Subject Matter in the United States

There are four permissible types of patentable subject matter under U.S. patent law: process, machine, manufacture, and composition of matter.[146] Claimed subject matter entirely directed to abstract ideas, mental processes, laws of nature, and natural phenomena, are not patentable.[147] Software and business-method patent applications usually have claims directed to a product (such as a machine, apparatus, system, etc.) and process or method. If a product claim includes subject matter that cannot be patented, such as an abstract idea or a patentable mathematical algorithm, the claimed subject matter is patentable only if the unpatentable subject matter is practically applied in the product. For

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[140] China Patent App. No. 01134655.8 (filed on Nov. 9, 2001) (Chinese Publication No. 100375062) (published on Mar. 12, 2008); U.S. Patent No. 6,928,261 (filed on Nov. 7, 2001).

[141] *See id.*

[142] *See id.*

[143] *See id.*

[144] *See id.*

[145] *See* SIPO, Patent Reexamination Decision No. FS11461 (2007), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS11461" into the search field labeled "决　定　号," hit enter and then select the URL labeled "FS11461").

[146] 35 U.S.C. § 101 (2006).

[147] *Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of Bilski v. Kappos*, U.S. PAT. & TRADEMARK OFF. (July 2010), http://www.uspto.gov/patents/announce/bilski_guidance.jsp [hereinafter *Interim Guidance*].

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example, a claimed apparatus with a mathematic algorithm tangibly applied to an apparatus is patentable.

In June 2010, in *Bilski v. Kappos*, the United States Supreme Court held that a business-method patent is not "categorically excluded" from patentable subject matter.[148]   A business-method or software patent application with a "[r]ecitation of a machine or transformation" (machine-or-transformation test) leans toward statutory subject matter.[149]   The machine-or-transformation test requires that a claimed process is tied to a particular machine or particularly transforms a particular article to a different state or thing.[150]   While the machine-or-transformation test is an important investigation tool for patentability, the *Bilski* court also held that this test should not be the sole test for patent eligibility under 35 U.S.C. § 101.[151]   The subsequent interim guideline published by the USPTO listed factors relevant to evaluating patentability, such as a claim including the application of a law of nature or a claim describing a solution to a particular problem.[152]

Although the requirements of patentable subject matter for software and business-method-related inventions have become less restrictive in the P.R.C., they are still considered to be more restrictive than U.S. patent law requirements. The following sections analyze the similarities and differences between the P.R.C. and the United States regarding patentable subject matter.

### a. Patent Applications in the Same Family Granted Both in the P.R.C. and the United States

The patent application "System and Method for Persistence Vector Based Rate Assignment,"[153] disclosed a method for assigning shared resources among multiple users, such as wireless channels shared by cell phone users.  A patent was granted in the P.R.C. on August 5, 2009 after a reexamination decision on June 26, 2006.  In the reexamination decision, the Board held that a patentable invention must provide a technical solution that (1) resolved a technical problem, (2) employed technical means, and (3) obtained technical effects.[154]   In this

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[148] Bilski v. Kappos, 130 S. Ct. 3218, 3227 (2010).

[149] *See Interim Guidance, supra* note 147.

[150] *See id.*

[151] *See Bilski*, 130 S. Ct. at 3223.

[152] *See Interim Guidance, supra* note 147.

[153] China Patent Application No. 00813403.0 (filed on Sept. 27th, 2000) (Chinese Publication No. 1390328) (published on Jan. 8, 2003).

[154] *See* SIPO, Patent Reexamination Decision No. FS8794 (2006), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS8794" into the search field labeled "决 定 号, " hit enter and then select the URL labeled "FS8794").

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application, the technical problem was resource overload when multiple users in a wireless communication system shared the resource.[155] The invention's technical means was to represent resource usage by vectors and control the resource allocation based on the representation of vectors and users' usage rates.[156] The technical effect was to maximize the resource usage and minimize the possibility of resource overload. [157]   Therefore, the Board concluded that the patent application satisfied Rule 2.1 and the claimed subject matter was patentable.[158]

A patent application in the same family was filed on September 30, 1999 in the United States.[159] The patent was issued on March 18, 2003. When comparing the breadth of the claims in the issued patents in the P.R.C. and the United States, it becomes clear that the claims in the patent issued in the P.R.C. were narrower. For example, independent claim 1 in the P.R.C. issued patent had a claim element of "shared resource" limited to a resource comprising a wireless communication channel.[160] In contrast, independent claim 1 in the United States' issued patent did not have the limitation specifying the type of shared resource.[161]

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[155] *See id.*

[156] *See id.*

[157] *See id.*

[158] *See id.*

[159] U.S. Patent No. 6,535,535 (filed Sept. 30, 1999).

[160] The following claim was translated by the author:

Claim 1.  A wireless communication system, its features comprising:

   shared resource, wherein the resource comprises a wireless communication channel; and

   a plurality of users, each having a device, wherein the device is to wireless transmit data to a base station by the said shared resource, each user having one or more vector, each vector comprising a set of vector element, each vector element corresponding to a usage rate in a set of available usage rate, each usage rate is the data transmission rate from the user to the said base station,

   wherein the actual usage rate of shared resource of each user is selected based on the user's set of available usage rate and the said set of vector elements.

China Patent No. 100524222C (filed Sep. 27, 2000).

[161] The first independent claim specified:

Claim 1. A system comprising:

   a resource having a capacity measure, and

   a plurality of users, each having a usage rate, a set of persistence vectors, and a set of available rates,

   wherein a user of the resource by each among the plurality of users is determined at least in part by the usage rate of the user, and

   wherein the usage rate of each among the plurality of users is selected from at least the user's set of available rates, said selection being determined at least in part by one among the set of persistence vectors.

U.S. Patent No. 6,535,523 (filed Sep. 30, 1999).

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The patent application entitled "Method of and Apparatus for Controlling Access to the Internet in a Computer System and Computer Readable Medium Storing a Computer Program"[162] did not require additional hardware other than a computer. According to the Guidelines, a claimed invention is patentable subject matter if the technical solution provided by the invention uses software to control or process an internal object of a computer. In this application, the technical solution was to control internet access.[163] The independent claim 1 controlled a computer system's internet access.[164] The computer system includes four databases: a first database storing a list of uniform resource locators (URLs) of accessible internet sites; a second database storing a list of URLs of prohibited internet sites; a third database storing prohibited keywords; and a fourth database storing useful keywords.[165] The Board concluded that the commonly-known technology for controlling internet access used a single database, which was often a database storing prohibited keywords.[166] Thus, the claimed invention provided a technical solution that resolved the technical problem of controlling internet access, applied technical means different from existing technical solution, and achieved technical effects of filtering the network content.[167] Subsequent to the Board's decision, a patent issued for this application in 2009.

A patent application in the same family was issued by the U.S. Patent Office without any rejections during prosecution.[168]

### b. Patent Applications in the Same Family Granted in U.S. but Not in the P.R.C.

The patent application, "Delivery Notice and Method of Using Same," involved collecting and storing parcel delivery information when each parcel has a unique code.[169] The claimed parcel delivery notice system comprised a code reading device and a code storage device.[170] In the reexamination request in the P.R.C., the applicant argued that the technical problem was to provide a device

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[162] China Patent No. 100483401 (filed Mar. 23, 2001).
[163] *See id.*
[164] *See id.*
[165] *See id.*
[166] SIPO, Patent Reexamination Decision No. FS9932 (2006) (stating that the claims were amended to have more limitations on how the four databases were used upon an internet access request when the application was submitted for reexamination), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS9932" into the search field labeled "决　定　号," hit enter and then select the URL labeled "FS9932").
[167] *See id.*
[168] *See* U.S. Patent No. 6,928,455 (filed Sept. 27, 2002).
[169] China Patent Application No. 01801246.9 (filed Mar. 28, 2001).
[170] *See id.*

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that could create detailed information on an undelivered parcel in a digital format, store the information, and provide the information to a user when requested.[171] The applicant further argued that the technical effect was to improvement of the data collection device and its related software/hardware.[172]

The Board disagreed and found that the application was to solve a problem in parcel delivery, but not a technical problem under Chinese patent law.[173] The technical means of the data collection device that provided parcel information to the receiver, which followed a mail delivery rule, was not a technical means sufficient to conform to current law.[174] The Board concluded that the parcel delivery notice system was to enable more efficient and convenient parcel delivery following a human-defined delivery schedule, so the system did not have the technical effects required under Chinese patent law.[175] Therefore, the overall solution did not satisfy Rule 2.1.[176] Additionally, the Board noted that existing data collection devices, such as scanners and digital cameras, could provide means to read and store electronic data, so the claimed invention did not improve existing technology.[177] The Board declined to grant the reexamined patent.[178]

A patent application from the same patent family was granted patent rights in the United States.[179] The issued patent included a claim of a system for delivering items with a unique machine-readable item code.[180] The claimed system comprised a delivery notice having a code, a code-reading device, and a code-storage device.[181] Hence, the rejected claim under the Chinese patent law was allowed under the U.S. patent law.

In contrast, a family of patents directed to an item tracking system with a passive beacon located approximate to one or more items was granted patent rights in both the P.R.C.[182] and the United States.[183] The item-tracking system

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[171] *See* SIPO, Patent Reexamination Decision No. FS11811 (2007), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS11811" into the search field labeled "决　定　号," hit enter and then select the URL labeled "FS11811").

[172] *See id.*

[173] *See id.*

[174] *See id.*

[175] *See id.*

[176] *See id.*

[177] *See* Patent Reexamination Decision No. FS11811, *supra* note 171.

[178] *See id.*

[179] *See* U.S. Patent No. 6,634,551 (filed Mar. 23, 2001).

[180] *See id.*

[181] *See id.*

[182] *See* China Patent No. 100390709 (filed Dec. 20, 2004).

[183] *See* U.S. Patent No. 7,063,256 (filed Jan. 23, 2004).

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comprised a beacon detection device to determine item location and a see-through display to present item information.[184]  Similar to the patent family on delivery notice, this patent family covered a technology used in parcel or mail processing, tracking, and delivery.  However, this patent family disclosed a solution using a beacon detection device for tracking parcels and a see-through display for presenting the tracking information, while both devices were uncommon for parcel tracking system.[185]  Therefore, the solution was a technical solution and the claimed invention was patentable subject matter under Chinese patent law.

### C.       Inventiveness Requirement

Inventiveness is an essential element for patents.  Patent systems may use this requirement to guard against abuse of patent rights.  Under Chinese patent law, a claimed invention must show substantial improvement to be patentable.[186]

#### 1.  The Statutory Requirement

Under Article 22.1, an invention for which a patent right may be granted must possess novelty, inventiveness, and utility. [187]  Article 22.1 further defines inventiveness as having prominent substantive features and making substantial progress. [188]  Public knowledge includes commonly-known technologies in the P.R.C. or foreign countries before the patent application's filing date.[189]

#### 2.  The Guidelines for Patent Examinations

In the P.R.C., when considering the inventiveness of a patent application with a certain filing date, the Guidelines state that public knowledge does not include any patent application that is published as a patent application or granted as a patent after the filing date, even if it is filed with the Patent Office before the filing date.[190]  In other words, any unpublished patent application at the filing date will not be used as a prior art reference in examining inventiveness for the patent application.[191]  For example, if Patent A was filed on date Y while Patent B was filed on date X (occurring before date X) and published on date Z (occurring after

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[184] *See id.*

[185] *See id.*

[186] *See* SIPO 2009, *supra* note 16, art. 21.

[187] *See id.*

[188] *See id.* art. 21.3.

[189] *See id.* art. 21.4. The Patent Law of the P.R.C. adopts an absolute novelty standard in the third revision.  Prior to the third revision, the Patent Law had a local novelty for public use.

[190] *See* Guidelines for Patent Examination 2010, *supra* note 23, ch. 4 § 2.1 (2010) (China).

[191] *See id.*

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date Y), Patent B cannot be used as a prior art reference in the examination of Patent A because Patent B was published after Patent A was filed.

An invention concerning existing technology may not be obvious to people skilled in the art.[192] The invention is obvious if people skilled in the art can by logical analysis, logical inference, or limited experimentation obtain the present invention from existing technology.[193]

An invention meets the substantial improvement requirement when it can generate beneficial technical effects.[194] The beneficial technical effects, for example, could be overcoming a problem in existing technology, providing a different solution to the resolution of an existing technical problem, or representing a new technology trend.[195]

### 3. Patent Reexamination Board Decisions

In the patent application entitled "Method of Granting Digital Rights Management Licenses to Support Plurality Devices," the invention was directed to a method of granting digital rights to a plurality of devices.[196] The invention allowed content reproduction on a device if digital rights had been granted, such as the right to download a piece of music.[197] This invention assigned devices to logical domains, while each domain used a domain server to grant digital rights to these devices.[198] In a reexamination proceeding, the Board concluded this invention used a logical domain to manage digital rights, while the prior art separated devices into predetermined groups with the same digital right.[199] In addition, in the claimed invention, digital rights might be pre-divided within a logical domain.[200] For example, more than one device might share the number of times to reproduce content allowed by a digital right.[201] The number of times content can be reproduced by each device may be pre-assigned.[202] Therefore, the

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[192] *See id.* § 2.2.

[193] *See id.*

[194] *See id.* § 2.3.

[195] *See id.*

[196] China Patent Application No. 200610101792.7 (filed Sep. 17, 2004 and claimed priority of Sep. 18, 2003).

[197] *See id.*

[198] *See id.*

[199] *See* SIPO, Patent Reexamination Decision No. FS18659 (2009), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS18659" into the search field labeled "决 定 号, " hit enter and then select the URL labeled "FS18659").

[200] *See* China Patent Application No. 200610101792.7, *supra* note 196.

[201] *See id.*

[202] *See id.*

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invention's technical solution achieved beneficial effects by managing and balancing digital rights for devices within a logical domain, and it was inventive.[203]

### 4.  Comparison with Nonobviousness Requirement in the United States

In a patent application of "Method for Controlling Resource in Coprocessor in Computing System and Computing Device," the claimed invention facilitated execution of multiple applications in a multitasking environment.[204] The Board relied on a patent entitled "Methods and Apparatus for Data Access and Program Generation on a Multiprocessing Computer"[205] as prior art, which used a master processor to control and schedule multiple processes in coprocessors.[206] The Board concluded the claimed invention was different from the prior art in at least two technical aspects: (1) the invented system transmitted data including an event notice from at least one coprocessor back to the host computing system in response to commands in a command buffer; and (2) it translated a command in the command buffer to a command for a specific hardware.[207]

In the Board's opinion, a processor that informed a user of task completion was common knowledge in the computer area.[208] In addition, the Board concluded a machine-language translation was a technical means frequently used in the subject area.[209] The two technical differences were deemed to be obvious to people skilled in the art.[210] In addition, the Board held that the Guidelines did not require evidentiary proof for every piece of common knowledge.[211] Thus, the lack of inventiveness rejection in the substantive examination was upheld.[212]

A patent application in the United States from the same patent family[213] was issued after overcoming obviousness rejections.[214] The U.S. Examiner raised

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[203] *See* Patent Reexamination Decision No. FS18659, *supra* note 199.

[204] China Patent Application No. 03800004.0 (filed Jan. 6, 2003) (claiming priority of Jan. 4, 2002).

[205] U.S. Patent No. 6,243,762 (filed Aug. 8, 1994).

[206] SIPO, Patent Reexamination Decision No. FS17817 (2009), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "FS17817" into the search field labeled "决 定 号," hit enter and then select the URL labeled "FS17817").

[207] *See id.*

[208] *See id.*

[209] *See id.*

[210] *See id.*

[211] *See* Patent Reexamination Decision No. FS17817, *supra* note 206.

[212] *See id.*

[213] U.S. Patent No. 7,234,144 (filed Jan. 4, 2002).

[214] *Id.* (file wrapper).

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similar obviousness rejections by referring to a prior-art reference in which a host computer controlled coprocessors by sending commands in command buffers and coprocessors transmitted data back to the host computer.[215] Additionally, the reference disclosed technical means to transform a command by a hardware-specific driver object.[216] The applicant overcame the rejections by adding a limitation to the claims, such as the limitation that the coprocessor was related to a host processor thread.[217] A continuation of this application was filed in the P.R.C. whose claims were based on the issued patent from the United States.[218]

The P.R.C. and the United States have different prior art definitions: prior art under Chinese Patent Law does not include any patent application that is published or granted as a patent after the date of filing of the present patent application.[219] In contrast, prior art under the U.S. Patent Law includes these patent applications.[220] Additionally, the prior art used in Chinese Patent Law is existing technology that is commonly known in the P.R.C. and other countries before the filing date of the patent application. The prior art used in the United States, however, excludes art that was publically used or known in countries outside the United States, but was not described in a printed publication.[221] Besides these differences, the steps in examining obviousness are similar, such as identifying prior art, determining technology differences, and determining whether the application is obvious to people skilled in the art.

IV.    PATENT ENFORCEMENT FOR SOFTWARE AND BUSINESS METHOD PATENTS

In the P.R.C., while hundreds of cases are litigated over software copyright infringements,[222] a relatively small number of cases are related to software and business-method patent infringements.[223] The litigants in these cases are mainly

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[215] *See id.*

[216] *See id.*

[217] *See id.*

[218] *See* China Patent Application No. 200910204637.1 (filed Jan. 6, 2003).

[219] *See* Guidelines for Patent Examination 2010, *supra* note 23, ch. 4, § 2.1.

[220] *See* 35 U.S.C. §§ 102(a), 102(e) (2006).

[221] *See* 35 U.S.C. §§ 102(a), 103(a) (2006).

[222]For information related to Chinese litigations, see generally CHINALAWINFO.COM (Feb. 25, 2012, 3:30 AM), http://chinalawinfo.com. There were 890 software copyright infringement cases were found through May 2010. *Id.*

[223] *Id.* Less than 10 software and business method patent infringement cases were found on ChinaLawInfo.com through May 2010. *Id.*

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between domestic business entities.[224]  Several cases involving foreign companies have been settled.[225]

One case involved alleged patent infringement of a laser-shooting simulation system patent.[226]  The claimed invention, which was a gaming system, was made up of a camera, a monitor, a data collection module, a laser position computation module, a main controller residing in a computer, and a sound device.[227]  The accused infringer initiated a patent invalidation proceeding at the Patent Reexamination Board but the Board held the patent valid. [228]  The accused infringing system used a mouse-processing device, which was external to a computer, to replace the data collection module and to compute the laser position.[229]  The laser-position-computation module in the accused system was not in a computer as the claimed invention; it was in a mouse-processing device.[230]  The court held that the technical effects of a laser position computation module on a computer and the feature implemented on a mouse-processing device were the same, so the two features were equivalent.[231]  The court thus issued a permanent injunction against the accused infringer and granted damages to the patent owner.[232]

A.     *Judicial Interpretation*

The Supreme People's Court of the P.R.C. has the authority to issue judicial interpretations of statutes and laws, which are binding on all courts.   On December 29, 2009, the Supreme People's Court of the P.R.C. issued a judicial interpretation, entitled "Interpretation of the Supreme People's Court on Several Issues Concerning the Application of Law in the Trial of Patent Infringement Dispute Cases," which became effective on January 1, 2010.

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[224] *Id.*

[225] *See e.g.*, Beijing Zhongyi Zhongbiao Elec. Info. Tech., Inc. v. Microsoft Corp. (April 6, 2007).

[226] Beijing Kangti Xiuxian Instrument Dev. Ctr. v. Beijing Ying Bo (北京康体休闲设备开发中心诉北京鹰搏蓝天科技有限公司等侵犯专利权纠纷案) (Beijing 2d. Interm. People's Ct. Dec. 20, 2004) (China).

[227] *See* China Patent No. 1098719.

[228] *See* SIPO, China Patent Reexamination Decision No. WX7339 (2005), *available at* http://www.sipo-reexam.gov.cn/reexam_out/searchdoc/search.jsp (enter "WX7339" into the search field labeled "决 定 号, " hit enter and then select the URL labeled "WX7339").

[229] *See* Beijing Kangti Xiuxian Instrument Dev. Ctr. v. Beijing Ying Bo (北京康体休闲设备开发中心诉北京鹰搏蓝天科技有限公司等侵犯专利权纠纷案) (Beijing 2d. Interm. People's Ct. Dec. 20, 2004) (China).

[230] *See id.*

[231] *See id.*

[232] *See id.*

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According to judicial interpretation, the doctrine of equivalents is available for a technical feature presented as a function or effect in a claim.[233] Under this rule, a court should construct a claim based on the means of the technical features disclosed in the patent description or figures or an equivalent means.[234] Further, according to the issued judicial interpretation, claim construction must be based on (1) literal language in a claim and (2) interpretation by people skilled in the art according to the patent description and figures.[235] Whether a patent is infringed is based on the all-elements rule.[236] That is, if the accused solution contains all technical features or its equivalence of a claim in a patent, the accused solution infringes the patent. If the accused solution is lacking of one or more technical features in the claimed invention, the accused solution does not infringe the patent.

Furthermore, most recent judicial interpretations establish other rules similar to those used in the U.S. patent system. These rules, among others, include prosecution history estoppel and existing technology prior to patent filing date as an affirmative defense.[237] These new rules work toward protecting patent owners' rights and promoting indigenous innovation, while not limiting technology development in the subject area of the patent.

## V.    PUBLIC POLICY DISCUSSION

In the beginning, the P.R.C. established its intellectual property system for entering the World Trade Organization. The first two amendments were made to harmonize with the international patent system. The most recent amendment, however, was to promote a culture of innovation and to provide an incentive to domestic inventors. Accordingly, whether the P.R.C. should favor software and business-method patent protection is based upon China's domestic needs.

This section argues that the P.R.C. should favor patent protection for software and business method patents based upon two rationales. First, applying economic analysis to the Chinese patent system, patent protections in these two areas provide higher social benefits than social costs. Second, patent protections in

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[233] Zhuigao Renming Fayuan Guanyu Shenli Qinfan Zhuanliquan Jiufen Anjian Yingyou Falu Ruogan Wenti de Jieshi (最高人民法院关于审理侵犯专利权纠纷案件应用法律若干问题的解释) [Interpretation of the Supreme People's Court on Several Issues concerning the Application of Law in the Trial of Patent Infringement Dispute Cases] (promulgated by the Supreme People's Court, Dec. 29, 2009) art. 4 (China).

[234] *Id.*

[235] *Id.* art. 2.

[236] *Id.* art. 7.

[237] *See id.* art. 15.

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these two areas will provide strong support to achieve the short-term and long-term objectives of the Chinese intellectual property system.

*A.　　Analysis Based Upon Economic Model*

The economic function of the Chinese patent system is to encourage innovation and promote economic progress.[238]  In other words, the objective of the Chinese patent system is to encourage entrepreneurs to invest and inventors to produce valuable goods that would not otherwise be produced.  If entrepreneurs cannot recover the cost of inventing, they will not have the incentive to invest in research and development efforts that leads to invention.  In the Chinese patent system, patent rights include exclusive rights to make, use, offer to sell, sell, import the patented product, or use the patented process.[239]  Patent rights further include exclusive rights to use, offer to sell, sell, or to import the product directly obtained by the patented process.[240]   While having the patent rights, patent owners are allowed to obtain high profits on the patented goods or services.

Patent owners are required to disclose the invention in a manner sufficiently clear and complete so as to enable a person skilled in the art to implement it.[241]  This provides a second type of economic benefit because people skilled in the art can learn from the teaching and disclosure of patents.  This was an important benefit taken into consideration by the Chinese government when the first Patent Law amendment was made.[242]  The first revision significantly increased the scope of patentable subject matter by adding chemical compounds.[243]  At that time, the Chinese domestic chemical industry was in its infancy.  The central government of the P.R.C. envisioned that a strong patent system would encourage new technologies to be disclosed in the P.R.C. and domestic researchers to actively contribute to inventions. [244]   While such a patent system would temporarily increase the financial burden for investment in these areas, in the long run, the patent system would promote accelerated growth of the domestic industry.[245]

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[238] Guojia Zhishi Chanquan Zhanlue Gangyao (国家知识产权战略纲要) [National Intellectual Property Strategic Outline] (promulgated by the State Council of the People's Republic of China, June 5, 2008), Section 1, http://www.gov.cn/zwgk/2008-06/10/content_1012269.htm (China).

[239] SIPO 2009, *supra* note 16, art. 11.

[240] *Id.*

[241] *See id.* art. 26.

[242] *See* Zhuanli Fa Diyici Xiugai de Shuoming (专利法第一次修改的说明) [Explanation of Patent Law First Amendment] (published online on December 28, 2006), *available at* http://www.sipo.gov.cn/zxft/zlfdscxg/bjzl/200804/t20080419_383843.html.

[243] *See* SIPO 2009, *supra* note 16, art. 26.

[244] *See* Zhuanli Fa Diyici Xiugai de Shuoming, *supra* note 242.

[245] *See id.*

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Based on the data of the current Chinese chemical industry,[246] the objective of the first amendment was reached. Sinopec Group has becomes one of the largest chemical companies in the world. Sinopec Group and its affiliates have submitted 9,253 patent applications since the inception of the Chinese patent system, in which 5,702 of them have been granted.[247]

Patent rights also bear social costs, such as higher product and service charges to consumers because of the increased prices charged. Additionally, patent rights are monopolistic rights that impede competition. Consequently, the scope of patent rights must be carefully balanced so the social costs of patent rights are limited.

As the Outline of the National Intellectual Property Strategy points out, the Chinese Intellectual Property System should provide proper balance among these different interests.[248] The underlying policy supporting the third revision of the Chinese Patent Law is to protect patent owners' legal rights, to encourage innovation, foster the application for patents on inventions, improve innovation capability, promote the advancement of science and technology, and promote economic and social development.[249] In other words, the Chinese patent system should ensure the economic gains of innovation exceed the social costs imposed by patent rights.

The booming software industry in the United States arguably supports software patent protections as a viable economic tool. Some industrial giants, like Microsoft and IBM, file a large number of patent applications each year.[250] At the same time, new start-up software companies have continually grown in numbers.[251] Both new and established software companies are active in obtaining

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[246] For the first ten months of 2011, China Gasoline and Chemical industries had an inventory worth an estimated 9.2 trillion RMB, based on data at http://vip.cheminfo.gov.cn/zxzx/page_info.aspx?id=372878&Tname=hgyw&c=1 (last visited January 26, 2012).

[247] *See generally*, SOOPAT.COM, www.soopat.com (last visited March 30, 2011).

[248] Guojia Zhishi Chanquan Zhanlue Gangyao (国家知识产权战略纲要) [National Intellectual Property Strategic Outline] (promulgated by the State Council of the People's Republic of China, June 5, 2008) sec. 4, http://www.sipo.gov.cn/zcfg/zcjd/200804/t20080403_369374.html (China).

[249] SIPO 2009, *supra* note 16, art. 1.

[250] *See International Patent Filings Recover in 2010*, World Intellectual Property Organization (WIPO) newsletter, Feb. 9, 2010, *available at* http://www.wipo.int/pressroom/en/articles/2011/article_0004.html. Microsoft has 469 published PCT applications and IBM has 416 published PCT applications in 2010. *Id.*

[251] There are 94,362 Computer Software Companies in the United States according to http://www.manta.com/mb_33_G2_000/computer_software (last visited January 26,2012).

patents.[252]   A company's patent portfolio is an important part of the assets evaluated during acquisitions.  If the correlation between the software industry's growth and patent system in the P.R.C. is similar to that of the United States, the exponential growth of the Chinese software industry would be supported by a strong and effective patent system.  Further, the Chinese software industry, similar to the growth of the chemical industry, will benefit from the incentives and the teaching provided by the patent system.

For similar reasons, business-method patents should also be embraced by the P.R.C.  Business methods are generally implemented by software, with or without special hardware components.  Chinese patent law emphasizes the technical aspects of patent applications, including business-method applications. Consequently, a valid business-method patent must have technical effects, i.e., making substantial progress on certain aspects of the patent system by implementing the business method.  For example, a business method is patentable if it can reduce the storage space of a commercial system.  Such performance improvement is often accomplished by software executions.  Therefore, a valid business method patent is typically a software patent in the P.R.C.  A business-method patent owner has exclusive rights to sell the product or service covered by the patent or license the patented business process to a third party.  Such rights provide a substantial competitive advantage to the patent owner.

In exchange for its patent rights, the patent owner must provide adequate disclosure of the patent to the public.  Sometimes a business-method patent may cover a relatively fundamental business process.  In this case, the social cost imposed to society is relatively large.  One good example is Amazon's One-Click patent.[253]   However, the One-Click patent does not have the technical effects required by the Chinese patent law, so it may not be granted in the P.R.C.  With its heightened requirements on enablement and patentable subject matter, the Chinese patent law has a lower risk of imposing higher social costs.  At the same time, business-method inventions, such as inventions directed to financial services and internet business transaction processes, have a huge impact upon a wide range of companies.  The enablement requirement will expedite the learning process of Chinese domestic players.  Therefore, a patent system that effectively enforces business-method patents will encourage more patent filings in this area and potentially support sustainable growth in industries utilizing business methods.

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[252] *See, e.g.*, *Robert P. Merges, Software and Patent Scope: A Report from the Middle Innings*, 85 Tex. L. Rev. 1627, 1643–44 (2007) (stating that both new and established software companies are contributors to patent filings).

[253]  U.S. Patent No. 5,960,411 (filed Sep. 28, 1999).

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One class of economic theory argues that the patent system has a lottery effect.[254]  Under this theory, the majority of patents have low value because a patent owner never enforces, licenses, nor even practices the patents.  A small portion of patents have value higher than their cost.  Under the patent lottery theory, a potential inventor decides whether to invest the time and resource to an invention with the hopes of the resulting patent being a highly valuable one.  This is a speculative process involving many uncertainties, such as, the uncertainty of whether the invention may lead to a valid patent, whether the patented subject area has commercial success, or whether the granted patent may be successfully enforced.[255]

Regardless of the low success rate of winning a large payout in the patent system, a large number of "lottery players" are drawn into the system.  The patent lottery theory claims individuals tend to be swayed more by changes in the amount of the payout than by changes in the probability of winning. [256] Accordingly, entrepreneurs are more likely to invest in innovations if the reward from patent enforcement is more valuable regardless of whether the patent-issue rate remains low.

The Chinese patent system has a higher standard on patentability than the American patent system.  This means that the Chinese patent system has a lower probability for patents to be granted.   Applying the patent lottery theory, the P.R.C. should provide an effective enforcement system to attract more "lottery players" to participate.  If the Chinese patent system provides large amount for damages in patent enforcement actions, entrepreneurs are more likely to invest in research and development leading to innovations.  This is true for both software patents and business-method patents.

*B.     Chinese Intellectual Property System Objectives*

The objective of the third amendment to Chinese patent law is to promote indigenous innovations. [257]  The Chinese patent system aims to support large domestic corporate growth into globalized corporations having well-known brands.[258]  The patent system also plays a key role in improving middle and small size companies' ability to generate and utilize innovations.[259]  At the same time,

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[254] *See, e.g.*, Dennis D. Crouch, *The Patent Lottery: Exploiting Behavioral Economics for the Common Good*, 16 Geo. Mason L. Rev. 141, 142 (2008).
[255] *See id.* at 151–152.
[256] *See id.* at 161.
[257] *See* Guojia Zhishi Chanquan Zhanlue Gangyao, *supra* note 248.
[258] *See id.*
[259] *See id.*

the Chinese government wants to change the economic development models and reduce resource dependency.[260]  The objective is that by 2020, innovation should become the driving force for Chinese economic development.[261]  As one of the incremental steps, the Chinese government encourages patent developments in core technologies, such as information industry, advanced manufacturing, modernized agriculture, modernized traffic systems, and aerospace.[262]  Software and business methods are utilized in many of these areas.  According to the short-term and long-term objectives of the Chinese patent system, it should favor software and business method patents.

In the P.R.C., a large number of people are working in telecommunication, medical devices, internet services, and other industries utilizing software and business methods.[263]  The P.R.C. is not lacking inventors.  In 2009, the number of patent applications from Chinese domestic applicants in the software area was much higher than the number from foreign applicants.[264]  The number of business-method patent applications from domestic applicants is about the same as the number of applications from foreign applicants.[265]  On the other hand, in the economic booming environment, many Chinese are looking for shortcuts to be part of the beneficiaries in this environment.  Piracy is one of the shortcuts that attract numerous people.  As the Outline of the National Intellectual Property Strategy points out, one of the five-year objectives of the intellectual property system is to reduce the amount of piracy.[266]  An intellectual property system providing effective patent enforcement, which protects the rights of invention owners and deters piracy, will assist with this objective.

A patent system may provide players from developed countries more advantages because of their sophisticated understanding of the protections that

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[260] *See id.*

[261] *See id.*

[262] *See id.*

[263] *See, e.g.*, 2009 Nian Xuanguo Ruanjian Chanye Tongji Gongbao (2009 年全国软件产业统计公报) [China Software Industry Statistics Gazette for 2009] (stating that China's software industry is close to 1 Trillion in 2009), *available at* http://www.gov.cn/gzdt/2010-02/03/content_1526916.htm (last visited March 30, 2011).

[264] *See* Zhuanli Tongji Jianbao (专利统计简报) [Patent Statistics Gazette] (February 20, 2010) (the number of China domestic patent applications in computer science is 11,104 and the number of applications from foreign applicants is 4,905).

[265] *See* Woguo Shangye Fangfa Zhuanli ShenQing Zhuangkuang Ji Fenxi (我国商业方法专利申请状况及分析) [Status and Analysis of Business Method Patent Applications in China] (Jan. 23, 2009), *available at*: http://www.sipo.gov.cn/sipo2008/ztzl/ywzt/zlsd/200812/t20081204_428899.html.

[266] *See* Guojia Zhishi Chanquan Zhanlue Gangyao *supra* note 248.

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patents afford.    For example, the number of patents maintained by foreign applicants for more than 10 years is greater than the number of patents maintained by Chinese applicants.[267]  This shows that Chinese domestic applicants are not as competent as their foreign counterparts in producing high quality patents and turning patents into economic value.  However, domestic applicants should learn from their competitors how to generate, protect, and utilize patent portfolios.  This is a first step for the domestic companies to become strong global players in the future, including companies in telecommunication and computer industries.  Consequently, an intellectual property system favoring patent protection will actually develop world-wide competitive qualities for domestic business entities.

The P.R.C. has a number of software and internet business companies, such as Baidu, Alibaba.com, Tencent, and Neusoft.    Tencent is an internet service provider founded in 1998.[268]  Tencent has submitted 1,888 patent applications and has received 858 issued patents as of March 2011.[269]  Most of Tencent's patent applications are related to software, and 221 of the applications are in the category of business-method patent applications. [270]    Tencent filed its first patent application in 2001, with a few applications per year until 2004.  Since 2004, Tencent has filed between 60 and 400 applications per year.[271]  The software companies in the P.R.C., like Tencent, are growing in both knowledge and maturity in utilizing the patent system.  Therefore, patent protections for software and business methods are likely to provide more benefits than costs to Chinese domestic companies.

Open-source is another growing aspect of the software community.  Open-source encourages contributing software products to the community.  In other words, open-source software is in the public domain and is not patentable.  Nevertheless, an intellectual property system favoring software patents does not work against promoting the efforts of open-source.  In fact, a healthy open-source community requires software users to contribute back to the community.  It requires the community members to respect intellectual property rights.  Therefore, in the P.R.C., a patent system favoring software patents will encourage the recognition and protection of patent rights and dissuade piracy.  With the support of such a system, companies could make a conscious choice between

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[267] *See* Zhuanli Tongji Jianbao (专利统计简报) [Patent Statistics Gazette] (March 5, 2010) (China).

[268] *See AboutTencent*, TENCENT, http://www.tencent.com/en-us/at/abouttencent.shtm  (last visited Feb. 18, 2012).

[269] Based on search data collected at http://SooPat.com on March 12, 2011.

[270]  *See id.*

[271] *See id.*

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patent protection of proprietary software and open-source software that may lead to faster realized potential and quicker development.

By providing patent protection to software and business methods, the culture of indigenous innovation in the related industries will be strengthened, the instances of piracy will be reduced, intellectual property rights will be recognized and respected, and the open-source community will be healthier. For all of these reasons, the P.R.C. should favor software and business method patents.

## VI.     CONCLUSION

Intellectual property protection plays a critical role in a nation's economic development. In 2008, before the effective date of the third revision of the Chinese Patent Law, the State Council of the P.R.C. issued the National Intellectual Property Strategy Outline.[272] According to the outline, the Chinese intellectual property system should focus on improving the intellectual property laws and regulations, improving intellectual property enforcement and management systems, promoting creation and use of intellectual property, strengthening intellectual property protection, and preventing abuse of intellectual property rights.[273] The intellectual property system should guide economic development.[274] The patent system should support high-tech industries and emerging industries.[275]

With the Chinese government's objectives in mind, an intellectual property protection strategy for software and business-method-related technologies become integral to a business entity seeking market opportunities in these technologies. To obtain patent rights for software and business methods related inventions in the P.R.C., technical solutions must be presented in patent applications. A technical solution must solve a technical problem, employ technical means, and achieve technical effects.

It is critical to describe the technical problem to be solved by a patent application. The problem of satisfying a business need, such as providing an online DVD rental service, is not a technical problem by itself. The problem of reducing network traffic, for example, may be a technical problem. Additionally, the technical means employed by the invention and the technical effects must be

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[272] Guojia Zhishi Chanquan Zhanlue Gangyao (国家知识产权战略纲要) [National Intellectual Property Strategic Outline] (promulgated by the State Council of the People's Republic of China, June 5, 2008), http://www.sipo.gov.cn/zcfg/zcjd/200804/t20080403_369374.html (China).

[273] *See id.*

[274] *See id.*

[275] *See id.*

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in conformity with the laws of nature. Technical means, following a business defined rule, such as a pricing scheme, are not in conformity with the laws of nature. In brief, software and business-method-related inventions must incorporate technology advancement to become patentable.

The analysis above shows that the P.R.C. has a sophisticated and consistent system of patent examination and patent issuance for software and business-method inventions.[276] Further, the P.R.C. has a fairly complete enforcement system to actually protect patent owners' rights.[277] With the analysis of a patent infringement decision and judicial guidelines on patent infringement cases, the Chinese patent system also shows an encouraging trend in providing effective means to protect patent rights in both software and business-method areas.[278] Moreover, the P.R.C. should favor patents in these two areas based on an economic model analysis to the Chinese patent system and analysis on the impacts of achieving the short-term and long-term objectives of the Chinese intellectual property system.[279] Thus, the P.R.C. has sufficient supports to both prosecute and enforce software and business-method patents and adequate justifications to favor patents in these two areas.

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[276] *See, e.g.*, *supra* Part III (providing a number of examples of how software and business-method patent applications will be examined in the Chinese patent system); *supra* note 34.

[277] *See, e.g.*, *supra* Part II (providing that the framework of the judicial systems in China is fairly complete).

[278] *See, e.g.*, *supra* Part IV (illustrating how the Chinese patent law is applied in the judicial systems and providing judicial interpretations as supplements to the Chinese Patent Law).

[279] *See supra* Part V.