

Washington International Law Journal

Volume 11 | Number 3

6-1-2002

How Wide Should the Gate of "Technology" Be? Patentability of Business Methods in China

Joy Y. Xiang

Follow this and additional works at: <https://digitalcommons.law.uw.edu/wilj>



Part of the [Comparative and Foreign Law Commons](#), and the [Intellectual Property Law Commons](#)

Recommended Citation

Joy Y. Xiang, Comment, *How Wide Should the Gate of "Technology" Be? Patentability of Business Methods in China*, 11 Pac. Rim L & Pol'y J. 795 (2002).

Available at: <https://digitalcommons.law.uw.edu/wilj/vol11/iss3/12>

This Comment is brought to you for free and open access by the Law Reviews and Journals at UW Law Digital Commons. It has been accepted for inclusion in Washington International Law Journal by an authorized editor of UW Law Digital Commons. For more information, please contact cnyberg@uw.edu.

HOW WIDE SHOULD THE GATE OF "TECHNOLOGY" BE? PATENTABILITY OF BUSINESS METHODS IN CHINA

Joy Y. Xiang[†]

Abstract: China regards business methods to be a form of mental activity, and consequently excludes them from patent protection. In recent years, along with the proliferation of computer, telecommunication, and Internet technologies, the line between business methods and technology has blurred. As a result, other patent systems, such as U.S. patent law, have modified or are re-evaluating their patent treatment of business methods.

The Chinese patent system is designed to promote the progress of science and technology. Business methods having no technical characters are not technological art. It would thus be overly inclusive to regard every business method as "technology" and therefore patent eligible. Further, broad business method patenting brings more negative impacts than positive influences. Therefore, China should not consider general business methods as patentable subject matter.

China may utilize other legal means such as trade secret law, copyright law, and computer software program protection rules to provide legal protection for business methods in general. Nevertheless, as China may want to consider business methods that are integral parts of innovative technical systems as patentable subject matter, high examination standards should be developed to ensure the quality of the patents protecting such business methods.

I. INTRODUCTION

After attaining a master of business management degree abroad, Johnson went home to the People's Republic of China.¹ Having worked in international business for more than a decade, Johnson felt that the traditional international trade transaction process was too complicated. To ensure the credibility of a transaction, the traditional process requires the examination of fifteen certifications and takes more than thirty days to complete. Together with some computer programming experts, Johnson set up an Internet company² and created an on-line system that streamlined the traditional international trade transaction process.³ The system takes inputs and commands from a user, processes the information, and executes the

[†] The author would like to thank Professor Toshiko Takenaka, Professor Donald Clarke, the *Pacific Rim Law & Policy Journal* editorial staff, friends, and family for their invaluable input, encouragement, and support in the process of writing this comment.

¹ The People's Republic of China [hereinafter China].

² For the company's website, see <http://www.perfectgoods.com>.

³ Yu Guo & Hong-Biao Chen, *Internet Innovation: The Appeal for Patent Protection*, CHINA DAILY, July 31, 2000, <http://www.peopledaily.com.cn>.

commands accordingly.⁴ It reduces transaction time from thirty days to ten minutes.⁵ To prevent the potential "cloning" of his operation method, Johnson applied for a patent. The Chinese Patent Office ("CPO") rejected his application on the ground that "ways of doing business are not yet patentable."⁶

At about the same time, the United States Patent and Trademark Office ("USPTO") granted a patent to a system called "Virtual Sales Personnel."⁷ The patent covers a method that "enables a user through a computer network or the Internet to interact with an interactive sales representative system for providing sales guidance."⁸ The virtual sales representative offers products, services, or ideas to the user according to input from the user.⁹ Depending on whether the system has the items that match the user's requirements, the system will either guide the user to retrieve the desired items or suggest alternatives.¹⁰ The system purportedly shortens the search cycle as well as helps a user find the best match for what he or she desires.¹¹

Both of these cases involve the patenting of business methods. Both applications involve the Internet. Yet, one country's patent office denied the application while the other one granted it. Because both countries are members of the World Trade Organization ("WTO"),¹² their patent policies need to be consistent with the WTO law governing intellectual property rights, namely the Trade-Related Aspects of Intellectual Property ("TRIPS").¹³ Are the very different patent law treatments of business methods by these two countries in line with the TRIPS requirements? Why are there differences? How should China treat the business method

⁴ *Id.*

⁵ *Id.*

⁶ *Id.*

⁷ U.S. Patent No. 6070149 A (issued May 30, 2000) (Patent titled "Virtual Sales Personnel").

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.*

¹² The World Trade Organization ("WTO") was established in 1995. See *What is the WTO*, at http://www.wto.org/english/thewto_e/whatis_e/whatis_e.htm (last visited May 23, 2002). It is the successor to the General Agreement on Tariffs and Trade. *Id.* It is the only global international organization dealing with the rules of trade between nations. *Id.* It has 144 member countries as of January 1, 2002. *Id.* At its heart are the WTO agreements, negotiated and signed by the bulk of the world's trading nations and ratified in their parliaments. *Id.* The goal of the WTO is to help producers of goods and services, exporters, and importers conduct their business. *Id.*

¹³ The Agreement on Trade-Related Aspects of Intellectual Property Rights ("TRIPS") establishes minimum standards of protection for each category of intellectual property rights. See GATT Secretariat, *Developing Countries and the Uruguay Round: An Overview*, Committee on Trade and Development, Seventy-seventh Session (1994), at http://www.wto.org/english/docs_e/legal_e/ldc2_512.htm (last visited May 8, 2002). These standards must be incorporated in the national laws of each WTO Member. *Id.*

patenting issue? This Comment addresses these questions, and ultimately concludes that (1) the Chinese patent system should not follow the U.S. approach that any business method is patentable if it produces a "useful, concrete, and tangible result;"¹⁴ (2) China should only consider patent protection for business methods that are integral parts of patentable technical systems; and (3) alternative legal means such as trade secret law should be used to protect business methods in general.

Part II of this paper provides background information on patent law policy objectives in general, the TRIPS patentable subject matter requirement, the scope of "technology," and the classification of business methods. Part III traces the history and development of modern Chinese patent law and discusses in detail the patentable subject matter in Chinese patent law and its current treatment of business methods. Part IV compares China's current patent treatment of business methods with that of the United States, Japan, and the European Patent Convention ("EPC"), finding that China's approach is most similar to that of the EPC, whose patent system design influenced much of modern Chinese patent law.¹⁵ Part V discusses whether China should include any business methods as patentable subject matter, as the United States does, and concludes that China should not expand its definition of "technology" to encompass business methods in general as patentable subject matter. Part VI suggests that China employ alternative legal means such as trade secret law to protect business methods in general, while granting patent protection to business methods that are integral parts of patentable technical systems, an approach similar to that of both the Japanese and the EPC patent systems.¹⁶

¹⁴ *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 1373 (1998), *cert. denied*, 525 U.S. 1093 (1999).

¹⁵ Informal consultation with Mr. Zhi-Cheng Zhang, China Patent Office Assistant Consultant (Dec 20, 2001).

¹⁶ See discussion *infra* Part IV (Section contains detailed discussions of Japanese and EPC patent systems).

II. BACKGROUND

A. *Patent Law Objectives and the TRIPS Patentable Subject Matter Requirement*

A specific purpose behind the establishment of a patent system is to promote scientific progress and innovations in technologies.¹⁷ Thus, a patent system offers an inventor “a relatively simple bargain: disclosure of a technological advance in exchange for the right to exclude others from employing it.”¹⁸ Chinese patent law aims to “promote science and technology.”¹⁹ Similarly, the United States Constitution grants Congress the power to “promote the progress of science and useful arts,”²⁰ and the U.S. courts have limited the concept of “useful arts” to the field of applied technology.²¹

TRIPS defines patentable subject matter as “any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application.”²² TRIPS further provides that a member country can exclude any patentable inventions that are necessary to protect public order or morality.²³ TRIPS also allows its member countries to exclude from patentability “diagnostic, therapeutic and surgical methods for the treatment of humans or animals” and “plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes.”²⁴ TRIPS does not define “technology,” leaving its members—including China, the United States, Japan, and the European countries—much room to define what constitutes patentable “technology.”

¹⁷ Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1017 (1989). See also Leo J. Raskind, *The State Street Bank Decision: The Bad Business of Unlimited Patent Protection for Methods of Doing Business*, 10 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 61, 69-70 (1999).

¹⁸ MARTIN J. ADELMAN ET AL., CASES AND MATERIALS ON PATENT LAW 1 (1998).

¹⁹ Patent Law of the People's Republic of China [hereinafter Chinese Patent Law], adopted at the 17th Session of the Standing Committee of the Ninth National People's Congress on Aug. 25, 2000, art. 1, available at <http://www.sptl.com.cn/English/law/patentidx.htm>.

²⁰ U.S. CONST. art. I, §8, cl. 8.

²¹ DONALD CHISUM, CHISUM ON PATENTS, §1.01 (2001).

²² Agreement on Trade Related Aspects of Intellectual Property Rights, art. 27, § 1, available at http://www.wto.org/english/docs_e/legal_e/27-trips.pdf.

²³ *Id.* § 2.

²⁴ *Id.* § 3.

B. *The Scope of "Technology"*

Over the ages, in different regions, the general idea of technology has expanded and evolved. For example, in the western hemisphere, during the eighteenth century, technology meant a simple agricultural tool such as an axe or a plow.²⁵ Later, in the nineteenth century, technology meant a more complex implement, such as a cotton gin or reaper.²⁶ During the twentieth century, technology meant actual machines, devices, and new chemical compositions.²⁷ At the dawn of the twenty-first century, different nations are considering whether inventions utilizing nuclear energy and computer software should be patentable subject matter.²⁸

One popular view of "technology" has been that it is applied science.²⁹ An old, yet well-accepted definition of "technology" is "the principles, processes, and nomenclatures of the more conspicuous arts, particularly those which involve application of science."³⁰ The USPTO refined this position, and declared "technology" to be "the application of science and engineering to the development of machines and procedures in order to enhance or improve human conditions, or at least to improve human efficiency in some respect."³¹ Under this view, human activities that do not involve science or the application of science will not constitute technical activity.

A much broader and more liberal view regards "technology" simply as the application of knowledge.³² In this view, technology is far more than applied scientific knowledge.³³ It is "the instrumental ordering of human experience within a logic of efficient means,"³⁴ or "the practical implementation of intelligence."³⁵ Under this broad definition, activities granted patent protection in the United States but not in China, such as the process of swallowing a pill,³⁶ may come within the scope of technical arts.

²⁵ Robert P. Merges, *As Many as Six Impossible Patents Before Breakfast*, 14 BERKELEY TECH. L. J. 577, 584 (1999).

²⁶ *Id.*

²⁷ *Id.* at 581.

²⁸ CHEN-SHI ZHENG, *THE STUDY OF INTELLECTUAL PROPERTY (ZHI SHI CHAN QUAN LUN)* 9 (2001).

²⁹ John Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139, 1167 (1999).

³⁰ JACOB BIGELOW, *ELEMENTS OF TECHNOLOGY* v (1829).

³¹ Examination Guidelines for Computer-Related Inventions, 61 FR 7478, 7479 n.7 (Feb. 28, 1996).

³² WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY, <http://www.m-w.com>.

³³ Examination Guidelines for Computer-Related Inventions, *supra* note 31.

³⁴ DANIEL BELL, *THE WINDING PASSAGE: ESSAYS AND SOCIOLOGICAL JOURNEYS, 1960-1980*, 20 (1980).

³⁵ FREDERICK FERRE, *PHILOSOPHY OF TECHNOLOGY* 26 (1988).

³⁶ U.S. Patent No. 3,418,999 (issued Dec. 1968).

Hence, depending on how a patent system interprets "technology," business methods may or may not fall within the protective scope of that patent system.

C. *Classification of Business Methods*

For the purpose of this Comment, while not giving business methods a set definition,³⁷ business methods in general³⁸ are grouped into three categories: (1) pure, manual ways of conducting a business, employing no technical means, such as how a restaurant arranges its seats to maximize profit; (2) mere translations of manual business operations into a technical system, which has no technical innovation or effect; and (3) business methods that are an integral part of an invention that has technical character, technical contribution, or technical effect.³⁹ Different patent systems grant patent protection to different groups of business methods according to the system's concepts on patentable subject matter, technology, and invention.⁴⁰

III. MODERN CHINESE PATENT LAW AND ITS CURRENT TREATMENT OF BUSINESS METHODS

A. *Legislative History of Modern Chinese Patent Law*⁴¹

The Constitution of China announces the government's attitude toward technical discoveries and inventions:

The state promotes the development of the natural and social sciences, disseminates scientific and technical knowledge, and commends and rewards achievements in scientific research as well as technological discoveries and inventions.⁴²

³⁷ See discussion *infra* Part V.C.1 (For a discussion on the difficulties inherent in attempting to precisely define business methods).

³⁸ In this Comment, the terms "general business methods" and "business methods per se" are equivalent to the term "business methods in general," which encompasses all ways of doing business.

³⁹ See discussion *infra* Parts III and IV (For a discussion on the connotation of technical character, technical contribution or effect).

⁴⁰ *Id.*

⁴¹ For the purpose of this paper, modern Chinese patent law started after 1949. For a succinct discussion of Chinese patent law history before 1949, see ZHENG, *supra* note 28, at 9-10.

⁴² CONST. OF P. R. CHINA, art. 20 (amended 1999).

In 1950, China enacted its first patent law, the "Provisional Regulations on the Protection of the Invention Right and the Patent Right."⁴³ This law gave inventors modest rewards, yet granted the state ownership of the inventions.⁴⁴ During the subsequent Cultural Revolution,⁴⁵ this law was eliminated.⁴⁶

After the Cultural Revolution, China began implementing a policy to modernize industrial development, agriculture, science and technology, and national defense.⁴⁷ One measure used to promote industry and technological development was to protect intellectual property in ways that were consistent with the laws of other nations.⁴⁸ After teams of Chinese scholars and experts visited different developed countries⁴⁹ to study their patent law systems,⁵⁰ a new modern Chinese patent law was established in 1984.⁵¹ This law was greatly influenced by the German patent system, which is the essence of the EPC patent system.⁵² As it states, the law was designed to:

Protect patent rights for inventions-creations, to encourage invention-creation, to foster the spreading and applications of inventions-creations, and to promote the development of science and technology, for meeting the needs of the construction of socialist modernization.⁵³

The 1984 Chinese patent law was a success and paved the road for future enhancements. Since its implementation, patent applications have

⁴³ This law was issued in 1950 and promulgated in 1963. See Louis S. Sorell, *A Comparative Analysis of Selected Aspects of Patent Law in China and the United States*, 11 PAC. RIM L. & POL'Y J. 319, 321 (2002).

⁴⁴ Laurence P. Harrington, *Recent Amendments to China's Patent Law: The Emperor's New Clothes?*, 17 B.C. INT'L & COMP. L. REV. 337, 342 (1994).

⁴⁵ The Chinese Cultural Revolution occurred from 1966 to 1976. It was a mass political movement that involved the entire nation and caused much legal and economic disruption. See *Cultural Revolution*, at <http://www.infoplease.com/ce6/history/A0814235.html> (last visited May 8, 2002) (online encyclopedia from the Columbia Encyclopedia, 6th ed.).

⁴⁶ Harrington, *supra* note 44, at 343.

⁴⁷ This policy is known as the "Four Modernizations." See *Four Modernizations*, at <http://www.infoplease.com/ipd/A0447680.html> (last visited May 8, 2002) (online encyclopedia from the Columbia Encyclopedia, 6th ed.).

⁴⁸ Harrington, *supra* note 44, at 343.

⁴⁹ Lionel S. Sobel, *Technology Transfer and Protection of Intellectual Property in China*, 12 LOY. L.A. INT'L & COMP. L.J. 61, 63 (1989), cited in Harrington, *supra* note 44, at 345 n. 50.

⁵⁰ Harrington, *supra* note 44, at 345, n. 52.

⁵¹ Patent Law of the People's Republic of China, established at second meeting of the Standing Committee of the Sixth National People's Congress (1984).

⁵² Zhang, *supra* note 15.

⁵³ Chinese Patent Law, *supra* note 19.

increased in volume each year.⁵⁴ However, the United States and other foreign patent holders continued to complain of piracy and patent infringement,⁵⁵ with the United States even threatening trade sanctions.⁵⁶

Eventually China reached an agreement with the United States in the Memorandum of Understanding on the Protection of Intellectual Property ("MOU").⁵⁷ The MOU was aimed at tightening intellectual property protection in China. The pact outlines specific steps for China to take to improve the enforcement of its intellectual property laws, including the establishment of certain administrative structures and issuing specific regulations.⁵⁸

In 1992, China amended its patent law in order to conform to the TRIPS agreement and implement the MOU.⁵⁹ Shortly after, China adopted the implementation details of the law.⁶⁰ Among the changes, the amendment extended the term of patent right, extended patent protection to chemicals and pharmaceuticals per se, strengthened the patent right of the patentee, amended the provision for compulsory licensing, specified the burden of proof in litigation relating to method patents, and added a provision for domestic priority.⁶¹

The second revision of Chinese patent law came on August 25, 2000 and took effect on July 1, 2001. This amendment was to further confirm the requirements of the WTO TRIPS agreement and to better protect domestic intellectual property rights.⁶² The amendment added new judicial and

⁵⁴ In 1991, 45,395 domestic and 4,645 foreign patent applications were filed. See *Statistics Show Sharp Increase in Patent, Trademark Applications*, PATENT, TRADEMARK & COPYRIGHT LAW DAILY (BNA), June 2, 1992. In 1994, 67,807 domestic and 9,928 foreign applications were filed. See *China: Foreign Patent Applications Increased Nine Percent in 1994*, PATENT, TRADEMARK & COPYRIGHT LAW DAILY (BNA), Mar. 31, 1995.

⁵⁵ Harrington, *supra* note 44, at 345.

⁵⁶ *Id.*, at 358.

⁵⁷ See Memorandum of Understanding on the Protection of Intellectual Property, Jan. 17, 1992, U.S.-P.R.C., 34 I.L.M. 676.

⁵⁸ See Naigen Zhang, *Intellectual Property Law Enforcement in China: Trade Issues, Policies and Practices*, 8 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 63, 73 (1997).

⁵⁹ Chinese Patent Law, *supra* note 19 (amended Sept. 4, 1992, effective Jan. 1, 1993).

⁶⁰ Implementing Regulations for the Patent Law of the People's Republic of China, State Intellectual Property Office of the People's Republic of China (2001), http://www.wanhuida.com/laws/Impl_PatentLaw.html (last visited May 3, 2002). These regulations were promulgated by China's Patent Office on Dec. 21, 1992, and last modified on June 26, 2001.

⁶¹ Zhipei Jiang, *Patent Litigation in China*, 9 FED CIRCUIT B.J. 479, n. 4 (2000).

⁶² Lianyu Ma (Deputy Commissioner of SIPO) delivered at the National Patent Work Conference (Jan. 18, 2001): "The accommodation of the socialist market economy, strengthening of the protection of patent rights, simplification of procedures and the acceleration of patent application processing, and harmonizing China's patent law with international standards and treaties," <http://www.cpo.cn.net>.

administrative protections, improved patent application procedures, and simplified patent enforcement procedures.⁶³

B. Patentable Subject Matter of Chinese Patent Law

Chinese patent law aims to "promote science and technology."⁶⁴ The CPO defines "invention" as "any new technical solution relating to a product, a process or improvement thereof."⁶⁵ Hence, Chinese patent law limits patentable subject matter with three criteria. First, it must be a technical solution, which is defined as "a concrete design that employs natural laws to solve a particular technical issue in product development or human living."⁶⁶ Thus, whether the subject matter in a patent application employs the laws of nature and forms a technical solution is an important factor in judging patent eligibility.⁶⁷ Second, the technical solution is limited to the scope of products and processes, where products are "the concrete objects result[ing] from industrial manufacturing" and processes are "the methods of manufacturing, using, communicating, and dispensing of the products and of utilizing the products in some special ways."⁶⁸ Third, the patentable subject matter must have industrial applicability, which means that it can be manufactured or utilized by business, such as industry, agriculture, forestry, aquatic products, animal husbandry, transportation, or medical materials.⁶⁹

Meanwhile, Chinese patent law expressly excludes the patentability of inventions that impede public welfare and are against national law and social morals.⁷⁰ Further, the law excludes from patent protection scientific discoveries, rules and methods for mental activities, methods for the diagnosis or treatment of diseases, animal and plant varieties, and substances obtained by means of nuclear transformations.⁷¹

The CPO interprets mental activities as activities whose effects result from the human thought process, or human judgment and decision-making,

⁶³ Jiwen Chen, *Better Patent Law for International Commitment—The Amendment of Chinese Patent Law*, 2 RISH. J. GLOBAL L. & BUS. 61 (2001).

⁶⁴ Chinese Patent Law, *supra* note 19.

⁶⁵ Implementing Regulations for the Patent Law of the People's Republic of China, *supra* note 60, ch. 1, r. 2.

⁶⁶ ZHIPEI JIANG, JIA KONG & ARE LA MU SI, WANG LUO YU DIAN ZI SHANG WU (CYBER LAW AND E-COMMERCE LAW) 90 (2001) (Content cited is translated by author from Chinese into English.).

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ Chinese Patent Law, *supra* note 19, art. 5.

⁷¹ *Id.*, art. 25.

but not from the laws of nature.⁷² These activities employ no technical methods or laws of nature, solve no technical problem nor produce any technical effect. Hence, they are not patentable subject matter.⁷³ When an invention as a whole contains only a form of "the rules and methods for mental activities," the invention is not patentable.⁷⁴ Furthermore, even when an invention as a whole contains more than a form of "the rules and methods for mental activities," if the invention's contribution to the current technology comes only from the mental activity elements, the invention is not patentable.⁷⁵ On the other hand, when the technical contribution of the invention as a whole does not come from or does not only come from the form of "the rules and methods for mental activities," the whole invention cannot be denied patentability just because it contains a form of "the rules and methods for mental activities."⁷⁶

For example, mathematical algorithms and computer software concerning economic and management principles are forms of "rules and methods for mental activities," and are therefore not patentable.⁷⁷ Only computer software concerning natural, scientific principles is patent-eligible.⁷⁸ However, when computer software is combined with a hardware system, if the combination as a whole constitutes a technical solution, has technical effect, and improves the current technology, then the combination can come under patent protection.⁷⁹ The dominant factor in applying for patent protection of a computer program-related invention is whether the invention has "technicality."⁸⁰ The technicality can be judged by whether the computer program is related to one technical field, whether it is related to a technical problem, or whether it can produce a technical effect.⁸¹

Following the same logic, the CPO expressly states that ways of doing business, financing, accounting and utilizing economic laws are forms of

⁷² Chinese Patent Office, *What is the meaning of "rules and methods for mental activities"?* Answer by China State Intellectual Property Office of P. R. China, at <http://www.sipo.gov.cn/sipo/zxt/cjw/zlwt/200109250056.html> (last visited May 7, 2002).

⁷³ Chinese Patent Office Patent Examination Guidelines, step II: Substance examination, Chapter one: Deniable patent application, §3.2, at http://www.sipo.gov.cn/sipo/zlsc/sczn/sqzn_2/200110250024.htm (last visited May 7, 2002).

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.*

⁷⁷ Chinese Patent Office, *What kind of patent applications are deniable?* Answer by China State Intellectual Property Office of P. R. China, available at <http://www.sipo.gov.cn/sipo/zxt/cjw/zlwt/200109250051.htm> (last visited May 7, 2002).

⁷⁸ Maiwen Pu, *Patent Protection for Computer Program-Related Inventions*, ZHI SHI CHAN QUAN YAN QIU (INTELLECTUAL PROPERTY STUDIES), No. 5, May 1998, at 41.

⁷⁹ JIANG, KONG & ARE LA MU SI, *supra* note 66, at 95.

⁸⁰ Pu, *supra* note 78, at 43.

⁸¹ *Id.* at 45.

"rules and methods of mental activities," and therefore are not patentable.⁸² However, a business process may be within patent protection if combined with hardware and software implementation.⁸³

In sum, Chinese patent law currently regards business methods in general as "rules and methods of mental activities," and therefore not patent-eligible. Nevertheless, in practice, CPO allows for patenting of business methods that are integrated into hardware and computer software systems.

IV. COMPARISON: PATENT LAW TREATMENT OF BUSINESS METHODS IN THE UNITED STATES, JAPAN, AND THE EPC

Patentability of business methods is a controversial topic, and different countries are taking different approaches. Currently, in the United States, any business method is patentable as long as it produces a "useful, concrete, and tangible result."⁸⁴ The Japanese Patent Office ("JPO") grants patents to business methods only if they are tied to a computer hardware system.⁸⁵ The European Patent Office ("EPO") excludes business methods from patent protection unless they are part of an invention that has technical character.⁸⁶ Similar to the EPO, the CPO seeks technicality in an invention and expressly excludes business methods from patent protection unless they are part of hardware and computer software systems.⁸⁷

A. *The U.S. Patent System*

The U.S. Constitution grants Congress the power to "promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."⁸⁸

⁸² Chinese Patent Office Patent Examination Guidelines, *supra* note 73.

⁸³ See Zhang, *supra* note 15.

⁸⁴ State Street Bank & Trust Co. v. Signature Financial Group Inc., 149 F.3d 1368, 1375 (1998).

⁸⁵ Policies Concerning Business Method Patents FAQ (2000), at <http://www.jpo.go.jp> (last visited May 7, 2002). Note, at the time of finalizing this paper, Japan is reportedly planning to revise its patent law so that business methods as such are patentable as long as they are computer or Internet implemented. See Toshiko Takenaka, *JPO's New Bill to Revise Patent and Trademark Law Will Prepare Japan for Network Society*, <http://www.law.washington.edu/Casrip/newsletter/news911jp2.pdf> (last visited May 7, 2002).

⁸⁶ Guidelines for Examination in EPO, Part C, Chapter IV-1 (1999), at <http://www.european-patent-office.org/guidelines/english/index.htm>.

⁸⁷ Chinese Patent Law Examination Guideline, *supra* note 73.

⁸⁸ U.S. CONST. art. I, §8, cl. 8.

U.S. patent law classifies patentable subject matter as any new and useful process, machine, manufacture, or composition of matter.⁸⁹ A "process" is further defined as a "process, art, or method, and includes a new use of known process, machine, manufacture, composition of matter, or material."⁹⁰ However, U.S. patent law does not define what are "useful arts," nor does it specify any prohibition on any particular process.

U.S. courts have equated "useful arts" with technological inventions. The U.S. Supreme Court defined patent-eligible subject matter as inventions that result from the application of the laws of nature to produce new and useful ends.⁹¹ The Court of Custom for Patent Appeal ("CCPA")⁹² interpreted "useful art" to be "technical art."⁹³ The Federal Circuit Court of Appeal ("FCCA")⁹⁴ affirmed, noting that "[t]he exclusive right, constitutionally derived, was for the national purpose of advancing the useful arts—the process today called technological innovation."⁹⁵

As a result, the U.S. legal system regarded business methods and processes as not patent-eligible because they did not result from the application of the law of nature,⁹⁶ even if they were implemented with hardware systems. "Whereas an apparatus or system capable of performing a business function may comprise patentable subject matter, the law remains that a method of doing business, whether or not generated by an apparatus or system, does not constitute patentable subject matter."⁹⁷

However, with the widespread growth of computer use, the development of the Internet, and the emergence of e-commerce, more and more technology is being used to produce automated and innovative business processes. "The distinction between technical processes and

⁸⁹ 35 U.S.C. §101.

⁹⁰ 35 U.S.C. §100(b).

⁹¹ *Gottschalk v. Benson*, 409 U.S. 63 (1972); *Diamond v. Diehr*, 450 U.S. 175, 188 (1981); *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127 (1948).

⁹² The CCPA is one of the U.S. Federal Circuit Court of Appeals' predecessor courts.

⁹³ *In re Bergy*, 596 F.2d 952, 201 U.S.P.Q. 352 (CCPA 1979); *In re Waldbaum*, 457 F.2d 997, 1003 (CCPA 1972) (Rich, J. concurring) ("The phrase 'technological arts,' as we have used it, is synonymous with the phrase 'useful arts' as it appears in Article I, Section 8 of the Constitution.")

⁹⁴ The FCCA was established to promote greater uniformity in certain areas of U.S. federal jurisdiction of the Federal Circuit to the review of appeals from the U.S. Court of International Trade, the Merit Services Protection Board, the board of contract appeals, and certain administrative decisions of the secretaries of Agriculture and Commerce, as well as all appeals related to patents. See *Establishment of the Federal Circuit*, 96 Stat. 25, April 2, 1982, at http://air.fjc.gov/history/landmark/22a_frm.html.

⁹⁵ *Paulik v. Rickalla*, 760 F.2d 1270, 1276 (Fed. Cir. 1985).

⁹⁶ See e.g., *Hotel Security Checking Co. v. Lorraine Co.*, 160 F. 467 (2d Cir. 1908).

⁹⁷ PETER D. RONSENBERG, *PATENT LAW FUNDAMENTALS* § 6.02[3] (2nd ed. 1995), cited in Francis Marius Keeley-Domokos, *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 14 BERKELEY TECH. L.J. 153, n.15 (1999).

manually executed, purely informational business methods" has blurred.⁹⁸ Consequently, the pre-computer era ban on business method patenting came under scrutiny.⁹⁹ In 1996, the USPTO began treating business method claims the same as any other process claims.¹⁰⁰ In 1998, the FCCA stated in dicta that business methods were eligible patentable subject matter if they produced "useful, concrete and tangible results,"¹⁰¹ and that business methods were subject to "the same legal requirements for patentability as applied to any other process or method."¹⁰²

These shifts at USPTO and FCCA resulted in a boom in business patent filing in the United States. The USPTO is experiencing substantial growth in business method patent applications.¹⁰³ E-commerce systems like Virtual Sales Personnel mentioned at the beginning of this Comment, methods for hitting a golf ball,¹⁰⁴ and processes for implementing a mortgage plan¹⁰⁵ have received patent protection. This change opens doors to many e-commerce businesses to get patent protection for their business models, because most of them implement their business operation methods through software.

Yet, the "useful, concrete, and tangible result" test is inconsistent with the "application of the law of nature" patent eligibility scope outlined by the U.S. Supreme Court and FCCA previously.¹⁰⁶ Further, FCCA did not define or limit business method patents when eliminating the bar to business method patentability.¹⁰⁷ Consequently, any business method, whether it is manually implemented, a straight technical translation of a manual business method, or a part of a truly innovative technical system, is patentable as long

⁹⁸ CHISUM, *supra* note 21, §1.03[5].

⁹⁹ *Id.*

¹⁰⁰ Examination Guidelines for Computer-Related Inventions, *supra* note 31, at 7479.

¹⁰¹ AT&T Corp. v. Excel Communications Inc., 172 F.3d 1352 (Fed. Cir. 1999), *cert. denied*, 120 S. Ct. 368 (1999), *on remand*, 52 U.S.P.Q.2d 1865 (D. Del. 1999); Signature Financial Group Inc., 149 F.3d 1368, 1373.

¹⁰² State Street Bank & Trust Co. v. Signature Financial Group Inc., 149 F.3d 1368, 1375 (1998).

¹⁰³ In the fiscal year of 1999, USPTO had 2658 business method-related arts ("Class 705") applications. See USPTO Business Method White Paper, available at <http://www.uspto.gov/web/menu/busmethp/index.html>. In 2000, there were 7800 applications filed in Class 705 and USPTO issued 899 Class 705 patents. See USPTO Today Article—Business Method Fiscal Year 2001 Statistics, available at <http://www.uspto.gov/web/menu/pbmethod/fy2001strport.html> (last visited May 8, 2002). In 2001, USPTO anticipated that there would be 10,000 Class 705 patent applications; the office issued 433 patents among them. *Id.*

¹⁰⁴ U.S. Patent No. 5,616,089 (issued Apr. 1, 1997) (Patent for method of putting).

¹⁰⁵ System and method for implementing and administrating a mortgage plan. U.S. Patent No. 4,876,648 (issued Oct. 24, 1989).

¹⁰⁶ Toshiko Takenaka, *Patent Harmonization: Comments on Issues Posted by the USPTO*, Center of Advanced Study and Research in Intellectual Property ("CASRIP") Newsletter, Spring/Summer 2001, available at <http://www.law.washington.edu/Casrip>.

¹⁰⁷ State Street Bank & Trust Co. v. Signature Financial Group Inc., 149 F.3d 1368, 1375.

as the method produces useful, concrete, and tangible results.¹⁰⁸ This inconsistency in patent eligibility interpretation, and the lack of definition or limitation on business methods, along with the lack of definition or limitation on what constitutes "useful art" in the U.S. patent statute, have introduced significant ambiguity in the execution of the U.S. patent law.¹⁰⁹ The USPTO and the U.S. legislature have taken measures in an attempt to remedy the negative impact caused by the ambiguity.¹¹⁰

B. *The Japanese Patent System*

Japanese patent law takes a more conservative stance on business methods than the United States, allowing business methods to be patented only when they are integrated with computer hardware resources.

Japanese patent law defines an invention as "the highly advanced creation of technical ideas by which a law of nature is utilized."¹¹¹ Thus, a patentable invention must (1) utilize natural laws, (2) be conceived from a technical idea, (3) be a creation of a technical idea, and (4) be highly advanced.¹¹² Personal skill and the mere presentation of information are not technical ideas.¹¹³ Neither computer programming language, software, nor the mere processing of information using a computer is patent-eligible.¹¹⁴

To cope with the rapid development of information technology, the JPO formulated policies concerning business method patents.¹¹⁵ The JPO defines a "business method patent" as a type of computer software invention that realizes ways of doing business by using computer or network

¹⁰⁸ *Id.*

¹⁰⁹ Gordon T. Arnold & Shannon Goldapp, "E-Commerce" and "Business Methods" – *What Type of Evidence Must a Challenger Use?*, 619 PLI/PAT 301, 305 (2000).

¹¹⁰ The USPTO has required secondary reviews on its Class 705 patents. The U.S. Congress has passed three acts concerning business method patenting. For further discussion, see in Part V.C.1 *infra*.

¹¹¹ Japan Patent Law, art. 2, para. 1, <http://www.jpo.go.jp/shoukaie/patent.htm> (last visited Apr. 30, 2002).

¹¹² Katsumi Kizaki, Reiki Muratake & Charles H. Suh, *Patentability of Business Method in the United States, Japan, and the European Union*, <http://www.law.washington.edu/Casrip/Harmonization/PatentEligible.doc> (last visited Apr. 30, 2002).

¹¹³ Japan Patent Office, Draft Revised Examination Guidelines for Industrial Applicable Inventions, available at <http://www.jpo.go.jp> (last visited Apr. 30, 2002).

¹¹⁴ Japan Patent Office, Implementation Guidelines for Examination in Specific Field – Computer Software Related Invention, Chapter 1, <http://www.jpo.go.jp/infoe/Guidelines/PartVII-1.pdf> (last visited April 30, 2002) [hereinafter JPO Implementation Guidelines for Examination].

¹¹⁵ Japan Patent Office, Policy Concerning "Business Method Patents," available at <http://www.jpo.go.jp/infoe/tt1211-055.htm> (last visited April 30, 2002).

technology.¹¹⁶ The Japanese patent system recognizes the need to grant patent protection to this type of business method.¹¹⁷

Hence, if a patent application related to business methods explains how computer hardware resources are utilized in the application, the JPO regards the application as utilizing natural law and thus patent eligible.¹¹⁸ "An invention, whether it is business-related or not, can be subject to a patent as a software-related invention if it meets certain requirements, such as involving information processing that uses computer hardware resources in order to solve a problem."¹¹⁹ Manual business methods—the ones that do not incorporate a technical system or a computer program—will be viewed as not utilizing "natural laws," and hence are not patentable.¹²⁰ Further, mere automation of a business process that had been known as a manual process by way of using a well-known method is not considered patentable.¹²¹

Moreover, the JPO appears to consider whether an invention has an improved technical effect over prior art rather than focusing solely on whether the law of nature was utilized in the claim. For example, in a claim using a computer programming method to solve business problems, the Japanese trial court upheld the patent because the computer program had an improved technical effect.¹²²

C. *The EPC Patent System*

The EPC patent system expressly excludes ways of doing business from patentable subject matter.¹²³ However, in recent years, the case law

¹¹⁶ Japan Patent Office, Policies Concerning Business Method Patents FAQ (2000), *supra* note 85.

¹¹⁷ *Id.*

¹¹⁸ JPO Implementation Guidelines for Examination, *supra* note 114.

¹¹⁹ Japan Patent Office, Examination of Business-Related Inventions, available at <http://www.jpo.go.jp> (last visited Apr. 30, 2002).

¹²⁰ Kizaki, Muratake, & Suh, *supra* note 112.

¹²¹ Policy Concerning "Business Method Patents," *supra* note 115.

¹²² *In re Karmarkar*, invalidation trial 09-2452, Japan Patent No. 2033073, cited in Ann Marie Rizzo, *The Aftermath of State Street Bank & Trust v. Signature Financial Group: Effect of United States Electronic Commerce Business Method Patentability on International Legal and Economic Systems*, 50 DEPAUL L. REV. 313, 357 (2000).

¹²³ European Patent Convention, art. 52, available at <http://www.european-patent-office.org/legal/epc/index.html> (last visited May 8, 2002).

from the European Patent Office ("EPO")¹²⁴ has shown a softening of this policy.¹²⁵

EPO grants patents to any inventions that are "susceptible of industrial application," that are new and have an innovative step.¹²⁶ EPO examination guidelines require that a patent eligible invention must be of a "technical character."¹²⁷ This means that the invention must relate to a technical field,¹²⁸ must be concerned with a technical problem,¹²⁹ and must have technical features.¹³⁰ The case law from EPO requires claims to be directed at subject matter in a "technological art."¹³¹

EPC does not define the term "invention." However, it provides a list of subject matter and activities that are deemed not to be patentable inventions.¹³² The items on the list include: schemes, rules, and methods for performing mental acts, playing games, or doing business; presentation of information, and programs for computers.¹³³ In the *Improved Pension Benefits System* case, the EPO board of appeals stated: "methods only involving economic concepts and practices of doing business are not patent eligible."¹³⁴ However, the board found that "the apparatus constituting a physical entity for carrying out such method" was patentable.¹³⁵

Though the EPC explicitly excludes business methods from patentable subject matter, it has indicated that if a method or product has technical characteristics—even if the claimed subject matter defines or at least involves a business method—the invention as a whole is still patent eligible.¹³⁶ In another EPO case, the claim was for a method of distributing material transported in bulk by ships, involving the use of a weighing and bagging

¹²⁴ EPO was created under the European Patent Convention, whose membership overlaps but is broader than European Union membership. EPO provides patent protection for up to twenty-six European countries on the basis of a single patent application and a unitary grant procedure. See http://www.uspto.gov/web/tws/tsr2000/1intro_epo.htm (last visited May 8, 2002).

¹²⁵ European Patent Office, Patentability of Methods of Doing Business, available at http://www.european-patent-office.org/news/pressrel/2000_08_18_e.htm (last visited May 8, 2002).

¹²⁶ European Patent Convention, *supra* note 123, §1.

¹²⁷ Guidelines for Examination in EPO, *supra* note 86.

¹²⁸ European Patent Convention, Rule 27, <http://www.european-patent-office.org/legal/epc/e/r27.html> (last visited May 8, 2002).

¹²⁹ European Patent Convention, Rule 29, <http://www.european-patent-office.org/legal/epc/e/r29.html> (last visited May 8, 2002).

¹³⁰ Guidelines for Examination in EPO, *supra* note 86.

¹³¹ EPO Decision T0935/97, available at http://www.european-patent-office.org/dg3/search_dg3.htm.

¹³² European Patent Convention, *supra* note 123.

¹³³ *Id.*

¹³⁴ EPO Decision T0931/95, available at http://www.european-patent-office.org/dg3/search_dg3.htm.

¹³⁵ *Id.*

¹³⁶ EPO, Patentability of Methods of Doing Business, *supra* note 125.

apparatus to unload and bag the material.¹³⁷ The EPO board of appeals granted the patent because it found that the method claimed did have technical character, involving the use of technical equipment (the bagging apparatus) to achieve a technical end (the production of sealed, weighted bags of the shipping material).¹³⁸ In a case where the applicant claimed a financial and inventory management computer system and the method for operating the system,¹³⁹ the EPO board of appeals also upheld the patent on the ground that "an invention comprising functional features implemented by software [was] not excluded from patentability" if technical consideration exists.¹⁴⁰ Here, the Board found that the implementation of the method in a computer system constituted technical consideration.¹⁴¹

Hence, within EPC jurisdiction, business methods generally are not patentable subject matter. However, a business method can come under patent protection if the business method claimed is part of an invention that has technical character.

D. Comparison

In summary, the current U.S. Federal Circuit's "useful, concrete, and tangible result" test will allow patents for any business method that meets the test, including business methods that involve no technical system, or that are parts of technical systems that have no technical inventiveness. Such coverage is inconsistent with the notion that patentable inventions involve the utilization of laws of nature.¹⁴² Thus, China can learn from the U.S. experience and determine whether the Chinese patent system should extend its concept of technology to incorporate any business methods as patentable subject matter, or if it should take a more moderate approach to avoid the pitfalls that the U.S. patent system has experienced and is now correcting.

Compared to the United States, the attitude of the Japan Patent Office is more conservative. It limits business method patentability to business methods that are implemented by computer software and hardware or that show some technical effects.¹⁴³ The CPO's current practice of considering

¹³⁷ EPO Decision T636/88, available at http://www.european-patent-office.org/dg3/search_dg3.htm.

¹³⁸ *Id.*

¹³⁹ EPO Decision T769/92, available at http://www.european-patent-office.org/dg3/search_dg3.htm.

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² See cases cited *supra* note 93 (U.S. courts' interpretation of "useful arts").

¹⁴³ JPO, Policies Concerning "Business Method Patents", *supra* note 115; see also JPO Implementation Guidelines, *supra* note 114.

business methods patentable when they are combined with computer software and hardware is in line with Japan's official approach.

However, Chinese patent law's requirement for patentable subject matter is most similar to that of the EPC. Both expressly exclude business methods from patentable subject matter, and both emphasize the technicality of the invention as a whole. The EPC considers an invention patentable subject matter if the claimed subject matter has technical character; that is, if the invention is related to a technical field, solves a technical problem, and has technical features.¹⁴⁴ Similarly, the Chinese patent law stresses that a patentable invention needs to have a technical character, be a technical solution, and have industrial applicability.¹⁴⁵

V. CHINA SHOULD NOT EXPAND ITS DEFINITION OF "TECHNOLOGY" TO ENCOMPASS GENERAL BUSINESS METHODS

To include all business methods as patentable subject matter would be overbroad patent protection in China. The driving force for the advancement in business industry is interactive emulation and competition.¹⁴⁶ Enlisting general business methods as patentable subject matter will not only impede the progress of the business industry, but also will work against the purpose of Chinese patent law in advancing technology and science.¹⁴⁷ Furthermore, overbroad business method patenting may discourage technical innovation and waste precious social resources.¹⁴⁸ Therefore, China should not consider general business methods as patentable subject matter.

A. *Patent Law and the Advancement of Business Interests*

The purpose of Chinese patent law is not to promote the advancement of business interests; rather, the primary purpose of Chinese patent law is to give incentives to advance science and technology.¹⁴⁹ Progress in business is fueled by the motivation to make profits and to stay ahead of competition.¹⁵⁰ Including general business methods in patentable subject

¹⁴⁴ Guidelines for Examination in EPO, *supra* note 86.

¹⁴⁵ Chinese Patent Office Patent Examination Guidelines, *supra* note 73.

¹⁴⁶ Raskind, *supra* note 17, at 102.

¹⁴⁷ Chinese Patent Law, *supra* note 19.

¹⁴⁸ Merges, *supra* note 25, at 592-593.

¹⁴⁹ Chinese Patent Law, *supra* note 19.

¹⁵⁰ Raskind, *supra* note 17.

matter would not only violate the purpose of Chinese patent law, but also would not aid the advancement of the business industry.

Patent protection is intended to induce entrepreneurs to undertake the costs of research and development of new technologies.¹⁵¹ In contemporary economic analysis, the application of technology is deemed the primary factor in economic growth.¹⁵² Empirical studies of various industries identified the importance of research and development as the strategic factor in nurturing and advancing technology.¹⁵³ The patent system serves as an incentive to induce the expenditure of the requisite initial costs of research and development and risk taking—that is, the initial outlay of money and effort in the face of an uncertain outcome.¹⁵⁴

On the other hand, interactive emulation and competition, more than innovation, are the driving forces behind business method changes.¹⁵⁵ Business methods are the products of “an established process of competitive commercial rivalry, a process that has been traditionally governed by emulation and by customary practices,”¹⁵⁶ custom demands, and even fashions. In other words, further development of business methods is stimulated by the market-driven economy, whereby the effect of patent protection, which acts as an external incentive, is superfluous.¹⁵⁷ A business entity improves the way it does business in order to be more effective and efficient, to stay ahead of competition, and to make more profit. Hence, getting ahead of the competition and reaping more business profits are the fundamental incentives to promote the advancement of business operations.

The proclaimed purpose of Chinese patent law is to “promote the progress of science or technology.”¹⁵⁸ Manual business methods are not technical art. Mere automation of manual business methods makes no technical contribution. Thus protecting business methods that are without technical merit does more to promote the economic interest of a business than to promote the progress of science or technology.¹⁵⁹ Therefore, in contrast to the United States, Chinese patent law should refuse to recognize

¹⁵¹ *Id.*

¹⁵² RICHARD R. NELSON, *THE SOURCES OF ECONOMIC GROWTH* 1 (1996).

¹⁵³ FREDRIC M. SCHERER, *INNOVATION AND GROWTH: SCHUMPETERIAN PERSPECTIVES* (1984), cited in Raskind, *supra* note 17, at 69.

¹⁵⁴ Raskind, *supra* note 17.

¹⁵⁵ *Id.*

¹⁵⁶ *Id.* at 66.

¹⁵⁷ Claus D. Melarti, *State Street Bank & Trust Co. v Signature Financial Group, Inc.: Ought the Mathematical Algorithm and Business Method Exceptions Return to Business as Usual?*, 6 J. INTELL. PROP. L. 359, 391 (1999).

¹⁵⁸ Chinese Patent Law, *supra* note 19.

¹⁵⁹ Melarti, *supra* note 157.

patent protection of an athlete's personal skill in swinging a golf club,¹⁶⁰ an activity that does little to promote "the progress of science or technology."¹⁶¹

B. Limited Benefits Provided by General Business Methods Patentability

While there are arguments in favor of a broad business method patenting policy, they are refutable, and the needs they endorse can be addressed by alternative legal means.

The first major argument in favor of general business method patenting is that it will protect small and medium-sized firms from the predatory acts of large corporations and provide an incentive for the financing of start-up companies.¹⁶² The advocates of this argument believe that a smaller firm may have better bargaining power against a larger firm by attaining business method patents.¹⁶³ However, they overlook the fact that bigger companies may be able to "undermine the entry of potential competitors by obtaining business method patents" ahead of the potential competitors.¹⁶⁴ This argument also assumes that potential investors will look favorably upon general business method patents, since potential investors usually value organizations that have some form of protection for their intellectual property over organizations that do not,¹⁶⁵ and since interests in the patent can be assigned to secure investment in the startup company.¹⁶⁶ However, potential investors may put little confidence in a general business method patent because of the potential risk that it may be found invalid upon further examination. Business practices have a long history, tracing back to the beginning of commercial activities. Though a patent office may grant a business method patent protection based on the limited prior art available, an accused infringer of the patent may uncover more prior arts that will invalidate the patent itself. Further, as the above discussion shows, Chinese patent law is for the advancement of technology, not for the advancement of business interests. Furthermore, other legal

¹⁶⁰ U.S. Patent No. 5,616,089, *supra* note 104.

¹⁶¹ Chinese Patent Law, *supra* note 19.

¹⁶² Larry A. DiMatteo, *The New "Problem" of Business Method Patents: The Convergence of Patent Law and International Internet Transacts*, 28 RUTGERS COMPUTER & TECH. L.J. 1 (2002).

¹⁶³ *Id.*

¹⁶⁴ *Id.*

¹⁶⁵ Jeffrey R. Kuester and Lawrence E. Thompson, *Risks Associated with Restricting Business Methods and E-Commerce Patents*, 17 GA. ST. U. L. REV. 657, 683 (2001).

¹⁶⁶ *Id.*

mechanisms in China, such as trade secret law, are available to protect business methods.¹⁶⁷

The second argument favoring general business method patenting is that because the current economy relies heavily on information and knowledge, business method patents will provide "a natural protection for useful applications of information and knowledge."¹⁶⁸ It is true that the transition from "a machine-oriented industry economy to a knowledge or information-based one warrants the expansion of patent systems to protect a wider realm of innovation."¹⁶⁹ But overbroad patent coverage may cause "unscrupulous attempts to gain monopoly power over widely known methods."¹⁷⁰ Monopolies may hamper the spread of information and knowledge since fewer people will be able to use the methods or improve upon them to facilitate efficient information diffusion, potentially undermining economic growth.

Another argument in favor of general business method patenting is that business methods, especially on the Internet, are more vulnerable to duplication, thus reducing the competitive advantages of the business method owners.¹⁷¹ As discussed above, business methods are the results of market emulation. Most business methods stand on the shoulders of other business practices. Preventing emulation of business methods in general will stifle the business industry itself. Further, as stated above, patent law is not a proper means for protecting general business methods, which are already protected under existing Chinese laws—mechanisms such as trade secret law, copyright law, and computer software protection rules. However, business methods that are integral parts of e-commerce systems may need explicit patent protection because of the open-code nature of the Internet. Part VI of this Comment will suggest a model to provide patent protection for business methods that are built into patentable technical systems.¹⁷²

C. *Negative Effects of Overbroad Business Method Patents*

The general business methods patenting approach may result in the issuance of overbroad patents. Overbroad business method patents may

¹⁶⁷ For a discussion of other legal protections including Chinese Anti-Unfair Competition Law, Copyright Law, and Computer Software Protection Rules see the discussion in Part VI.

¹⁶⁸ Kuester & Thompson, *supra* note 165.

¹⁶⁹ DiMatteo, *supra* note 162.

¹⁷⁰ *Id.*

¹⁷¹ Kuester & Thompson, *supra* note 165.

¹⁷² See discussion in Part VI.

impede the advancement of the business industry, instead of promoting it. They may also induce people to seek quick profits, and lessen the incentive for technical innovation.

1. The Possibility of Issuing Overbroad Business Method Patents

Allowing general business methods as patentable subject matter creates the risk of issuing overbroad patents because of the difficulty in defining the term "business methods." For example, the U.S. Federal Circuit Court of Appeals called the term "fuzzy."¹⁷³ The *State Street* case did not define what "business methods" were when it removed the patent restriction.¹⁷⁴

Following the *State Street* decision, the U.S. Congress has tried to determine what constitutes business methods.¹⁷⁵ The American Inventor's Protection Act of 1999¹⁷⁶ defines business methods as "any method for doing or conducting an entity's business."¹⁷⁷ This definition gives no apparent limitation on the concept. The U.S. 106th Congress again attempted to define business methods in a bill proposed in 2000:

(1) A method of (A) administering, managing, or otherwise operating an enterprise or organization, including a technique used in doing or conducting business; or (B) processing financial data; (2) any technique used in athletics, instruction, or personal skills; and (3) any computer-assisted implementation of a method described in paragraph (1) or a technique described in paragraph (2).¹⁷⁸

This definition seems imprecise. The "administering, managing, or otherwise operating an enterprise or organization"¹⁷⁹ can be interpreted to cover all methods. Similarly, the reference to "computer-assisted

¹⁷³ In re Schrader, 22 F.3d 290, 298 (Fed. Cir. 1994) (Newman, J., dissenting).

¹⁷⁴ *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 1375(1998).

¹⁷⁵ See, e.g., American Inventors Protection Act, H.R. REP. No. 106-287, Business Method Patent Improvement Act of 2000, H.R. 5364, 106th Cong. (2d Sess. 2000); Business Method Patent Improvement Act of 2001, H.R. 1332, 107th Cong. (2001).

¹⁷⁶ American Inventors Protection Act, *supra* note 175, pt.1 at 53-54 (1999). Enacted by U.S. Congress to strike a balance between "inventors who have invented and commercialized business methods and processes. . . and later U.S. or foreign inventors who have patented the processes" by providing a prior art defense for business methods. See Arnold & Goldapp, *supra* note 109, at 307.

¹⁷⁷ Arnold & Goldapp, *supra* note 109, at 346.

¹⁷⁸ Business Method Patent Improvement Act of 2000, *supra* note 175.

¹⁷⁹ *Id.*

implementation" may cover all software and hardware solutions used in conducting a business or operating an enterprise.¹⁸⁰

The U.S. Business Method Patent Improvement Act of 2001 refined the "business method" concept further. It defines "business method" as:

- (1) A method of (A) processing data; or performing calculation operations; and (B) which is uniquely designed for or utilized in the practice, administration, or management of an enterprise;
- (2) any technique used in athletics, instruction, or personal skills; and
- (3) any computer-assisted implementation of a method described in paragraph (1) or a technique described in paragraph (2).¹⁸¹

Even this specification seems inexact. "A method of processing data or performing calculation operations" or a "computer-assisted implementation" may cover many ordinary methods long regarded to be outside the reach of business operations.¹⁸²

As a result, the business method patents issued in the United States stirred up some attention. Methods for treating disease,¹⁸³ sports-related movements,¹⁸⁴ and even psychological analysis¹⁸⁵ have gained patent protection. Further, a method for using language during translation,¹⁸⁶ a method resulting in human aesthetic reaction,¹⁸⁷ and a system for allowing a person to experience systems of mythology,¹⁸⁸ were all granted U.S. patent protection as well. Questions remain as to where the limits of protection are and where they will be for business method patenting.¹⁸⁹

Hence, the United States patent system, by allowing patent protection for any business method without providing a limiting definition to narrow the scope, opened a floodgate allowing broad range of human experience to

¹⁸⁰ Kuester & Thompson, *supra* note 165, at 678.

¹⁸¹ Business Method Patent Improvement Act of 2001, *supra* note 175.

¹⁸² Kuester & Thompson, *supra* note 165, at 678.

¹⁸³ Drug and Methods for Treating Diseases, U.S. Patent No. 5,456,663 (issued Oct. 10, 1995).

¹⁸⁴ See generally Carl A. Kukkonen, III, *Be a Good Sport and Refrain from Using My Patented Putt: Intellectual Property Protection For Sports Related Movements*, 80 J. PAT. & TRADEMARK OFF. SOC'Y 808 (1998).

¹⁸⁵ Character Assessment Method, U.S. Patent No. 5,190,458 (issued Mar. 3, 1993).

¹⁸⁶ Method of Using a Created International Language as an Intermediate Pathway in Translation Between Two National Languages, U.S. Patent No. 4,864,503 (issued Sept. 5, 1989).

¹⁸⁷ Method of High Resolution Silk Screen Printing, U.S. Patent No. 5,730,052 (issued Mar. 24, 1998).

¹⁸⁸ System for Allowing a Person to Experience Systems of Mythology, U.S. Patent No. 5,734,795 (issued Mar. 31, 1998).

¹⁸⁹ Thomas, *supra* note 29, at 1185.

be patentable subject matter.¹⁹⁰ China should learn from the U.S. experience and avoid the possibility of issuing overbroad business method patents that would impede development of business and technical growth.

2. *Negative Impacts on the Development of Business*

Overbroad patents will impede the advancement of business. One empirical study has found a causal link between the absence of broad patent protection and the rapid entry of computing firms and accelerated product improvement.¹⁹¹ The study examined different industries (electrical lighting, automobiles, airplanes, radio, and semiconductors and computers, chemical and biotechnology) for technological advancement.¹⁹² The authors stated:

Our general conclusion is that multiple and competitive sources of invention are socially preferable to a structure where there is only one or a few sources. Public policy, including patent law, ought to encourage inventive rivalry, and not hinder it [A] rivalrous structure surely has its inefficiencies. But such a structure does tend to generate rapid technological progress and seems a better social bet than a regime where only one or a few organizations control the development of a given technology.¹⁹³

Further, overbroad business method patents pose a direct restraint on the conduct of actual and potential competitors.¹⁹⁴ "[P]atents on business methods can become the source of multiplying royalty claims and burgeoning infringement litigation. Such claims can impede rather than induce competitive conduct, and the resulting transaction costs are likely to impinge negatively on consumer welfare."¹⁹⁵

Injecting broad patent protection into an emulating, competitive business market system, absent a clear showing of useful innovative advances, disrupts the system.¹⁹⁶ Similar product groups and services tend to cluster near their potential customers.¹⁹⁷ A supplier of goods or services

¹⁹⁰ *Id.*

¹⁹¹ Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839 (1990).

¹⁹² *Id.* at 887.

¹⁹³ *Id.* at 908.

¹⁹⁴ Raskind, *supra* note 17, at 102.

¹⁹⁵ *Id.*

¹⁹⁶ *Id.*, at 82.

¹⁹⁷ *Id.*

who moves in advance of revealed customer preferences risks losing customers resulting in a decline in revenue.¹⁹⁸ Patent protection offers such a supplier the alternative of withdrawing from participating as an active market actor: he or she instead can devote the energy to patenting, licensing, and litigating patent infringement cases.¹⁹⁹ The consequence of such conduct may increase the prices of goods and services and negatively affect consumer welfare.²⁰⁰

3. *Negative Impact on Incentive for Innovation and the Utilization of Social Resources*

Moreover, broad business method patenting may dilute the purpose of patent protection to encourage innovation and cause potential waste of social resources. To gain easy and quick business profits through business method patents, some companies will spend resources on patenting business methods without high innovation, instead of on research and development for new products, since the latter may take more resource and risks to invest.²⁰¹ Further, broad business method patentability may cause some businesses to become the collectors of patent royalties, rather than to be active participants in the market place.

Furthermore, since there is no effective way to search for prior art, it is possible that invalid business patents, that would not withstand further examination during litigation, will be granted. Nevertheless, before a court invalidates a patent, many societal resources will have already been wasted.²⁰²

Finally, it costs much resource to allow general business methods to be patent-eligible at the first place, and then to try to weed out overbroad and low quality business method patents by installing extra administrative measures. For example, to improve the quality of future business method patent issuance, the USPTO designed the Business Method Patent Initiative in year 2000.²⁰³ The action plan for this initiative includes more training for patent examiners, expanding prior art search scopes, and partnership with

¹⁹⁸ *Id.*

¹⁹⁹ *Id.*

²⁰⁰ *Id.*

²⁰¹ For example, Walker Digital Inc., Priceline.com's patent company, claims to be an idea factory that acquires various business method patents. It currently owns more than seventy business methods and has more than 400 patent applications pending. See Walker Digital, at <http://www.walkerdigital.com/index.cfm> (last visited May 8, 2002).

²⁰² Merges, *supra* note 25, at 592-93.

²⁰³ USPTO, *Business Method Patent Initiative: An Action Plan*, <http://www.uspto.gov/web/offices/com/sol/actionplan.html> (last visited May 15, 2002).

relevant industry sectors.²⁰⁴ All these measures will help to improve the quality of business method patents issued. But, rather than spending resources to solve the problems, it will be better to reduce the occurrences of the problems by limiting the scope of business method patent-eligibility.

Therefore, China should not allow general business methods to be patent eligible subject matter because the Chinese patent law is designed to promote the advancement of science and technology, while the progress of business is driven by competition and mutual emulation. Moreover, broad business methods patents bring more negative impacts than positive results.

VI. RECOMMENDATION FOR LEGAL PROTECTION OF BUSINESS METHODS IN CHINA

Though Chinese patent law should not regard business methods in general as patent eligible subject matter, alternative means in the Chinese legal system can be employed to offer various protections to general business methods. However, at this stage, China should consider business methods that are integral parts of patentable technical systems, such as e-commerce systems, to be patent eligible, albeit subject to high scrutiny and special measures.

A. *Alternative Legal Means for Protecting Business Methods in General*

Even though Chinese patent system should not include general business methods as patentable subject matter, the business method owner can use other existing laws in China to protect his or her interests.

1. *Chinese Law Against Unfair Competition*

The Chinese Law Against Unfair Competition prohibits the use of illegal means to infringe on trade secrets.²⁰⁵ The law defines a trade secret as:

Any technical or operation information that is publicly unknown, can bring economic benefit to its owner, has practical

²⁰⁴ *Id.*

²⁰⁵ Law Against Unfair Competition of the People's Republic of China, ch. 2, art. 10, <http://www.yiping.com/English/law/unfairidx.htm> (last visited May 8, 2002).

utility and that the owner has implemented security procedures to ensure its confidentiality.²⁰⁶

This law forbids anyone from accessing trade secrets through stealing, bribing, threatening, or the breaching of confidentiality agreements.²⁰⁷ Hence, business method owners can either utilize the unfair competition law to declare their internal business methods a trade secret²⁰⁸ or use internal confidentiality agreements to protect the concepts and methods.²⁰⁹

Unlike the duration for patents,²¹⁰ duration for a trade secret is potentially indefinite.²¹¹ For example, the formula for Coca-Cola has been a trade secret for more than a century.²¹² In addition, the resources required to obtain a trade secret are minimal, because there is no registration system for them.²¹³ Hence, a business method may enjoy a longer term of legal protection under trade secret law than under patent law if the business method owner implements effective measures²¹⁴ to keep the method confidential.²¹⁵

However, treating business methods as trade secrets discourages their disclosure and requires resources to implement confidentiality procedures for keeping the information secret.

2. Chinese Copyright Law

The Chinese Copyright Law²¹⁶ defines "works" protected by the copyright law as "works of literature, art, natural science, social science,

²⁰⁶ *Id.*

²⁰⁷ *Id.*

²⁰⁸ Zhang, *supra* note 15.

²⁰⁹ Guo & Chen, *supra* note 3.

²¹⁰ Chinese patent law designates that the "duration of patent right for inventions shall be twenty years, the duration of patent right for utility models and designs shall be ten years, counted from the date of filing." See Chinese Patent Law, *supra* note 19, art. 45.

²¹¹ Jon D. Grossman and Eric Oliver, *A Step-by-step Guide to Prosecuting Business Method Patents*, 17 NO. 3 COMPUTER LAW. 6, 8 (2000).

²¹² *Id.*

²¹³ *Id.*

²¹⁴ Such procedures might include confidentiality agreements with employees and business partners and access controls. See Jeffrey Anne Tatum D. Peter Harvey, *Trade Secret Audit: Risks of Loss and Strategies for Protection*, 429 PLI/PAT 383.

²¹⁵ It is true that proper means such as reverse engineering or independent invention can legally uncover a trade secret. This can put e-commerce business systems at a great disadvantage since they are particularly susceptible to reverse engineering. Therefore, other legal means should be devised to protect e-commerce systems. See discussion *infra* Part VI.B.1.

²¹⁶ Adopted at the Fifteenth Session of the Standing Committee of the Seventh National People's Congress on 7 Sept. 1990, and revised in accordance with the Decision on the Amendment of the Copyright Law of the People's Republic of China adopted at the 24th Session of the Standing Committee of the Ninth

engineering technology and the like.”²¹⁷ A work can be expressed in a list of specified forms, including computer software.²¹⁸ The term of the protection is the lifetime of the author plus fifty years after his or her death.²¹⁹ Hence, an invention or business method will be under copyright protection once it is expressed in one of the listed forms. A business method expressed in a media such as computer software can be protected from exact copying of the work or the wholesale copying of the work.²²⁰

On the other hand, copyright only protects the expression of a work, not the underlying idea expressed. As a result, the functional aspect of the computer program containing a business method, such as the algorithm, data structures, and protocols are outside the protection scope of Chinese copyright law. Consequently, other people may use different coding to express the same idea.²²¹ As a result, the copyright law will protect the business method contained in a computer program only when the program is copied in its entirety.

3. *China Software Protection Rules*

The China Computer Software Protection Rules²²² protect computer programs that are independently created by the developer and that are fixed in a tangible form.²²³ The Rules define “computer software” as “the coding and the supporting files.”²²⁴ Business methods implemented in computer programs may be protected under this law. Nevertheless, the Regulations expressly exclude protection of activities leading to the formation of the source code, including mental exercises, concepts, and algorithms.²²⁵

Therefore, although business methods in general may not be legally protected under Chinese patent law, they may still be protected by alternative Chinese laws. Furthermore, Chinese law making functions may

National People's Congress on 27 Oct. 2001. See Copyright Law of the People's Republic of China (2001), <http://www.chinaiprlaw.com/english/laws/laws10.html> (last visited May 8, 2002).

²¹⁷ *Id.* art. 3.

²¹⁸ *Id.*

²¹⁹ *Id.* art. 21. Note, if the copyright owner is a legal entity, the term is fifty years after the first publication of the work. *Id.*

²²⁰ Grossman and Oliver, *supra* note 211, at 8.

²²¹ *Judicial Protection of IPR in China*, at <http://www.chinaiprlaw.com/wtjd/wtjd36.htm> (last visited May 8, 2002).

²²² China Computer Software Protection Rules (2002), <http://www.sipo.gov.cn/sipo/flfg/qtzscqflfg/200110290149.htm> (last visited May 8, 2002). The new version was released in December 2001 and became effective on January 2002. *Id.* It replaced the previous version enacted in 1991. *Id.*

²²³ *Id.* art. 4.

²²⁴ *Id.* art. 2.

²²⁵ *Id.* art. 6.

also consider expanding the protection scope of these laws to accommodate the needs of reasonably protecting general business methods.

B. Patentability of Business Methods that are an Integral Part of a Technical System

While there may be little benefit in granting patent protection for business methods with low technicality and creativity, China should consider granting patent protection for business methods that are indispensable parts of patentable technical systems.

When a business method is closely integrated with a technical system, it may be more than mental activity. Traditionally, business methods have been regarded as a form of mental activity that does not utilize laws of nature and has no practicable technical solution.²²⁶ However, today, when business methods are combined with computer network systems and telecommunication technologies, they are capable of great technical effect—far beyond the realm of the human thought process.²²⁷ They contain enormous technical functions and are industrially applicable and thus fulfill the criteria of patentable subject matter under Chinese patent law.²²⁸

1. Patent Protection on E-Commerce Business Methods

Alternative legal means such as trade secret law may not be able to sufficiently protect Internet business methods because of the open-code nature of the Internet.²²⁹ Therefore, patent protection may be “the only practical means of guarding” Internet business methods.²³⁰ Nevertheless, such patent protection needs to be measured so that only high quality Internet business method patents will emerge in China.

a. Alternative legal means not protective of Internet business methods

The technical characteristics of Internet systems may render the conventional protection for business methods ineffective. The secrecy of business methods may be lost when the computer source code is accessible by the public. For example, in the two most popular Internet browsers,

²²⁶ Chinese Patent Office Patent Examination Guideline, *supra* note 73.

²²⁷ JIANG, KONG & ARE LA MU SI, *supra* note 66, at 97.

²²⁸ *Id.*, at 102.

²²⁹ Melarti, *supra* note 157, at 388.

²³⁰ *Id.*

Internet Explorer and Netscape, a user can choose "view source" from the browser menu to look at the HTML code of the web page. A deliberate user may figure out the schemes of the business systems by studying the source code. In this situation, the method of operation can no longer be protected by mutual confidential agreements between business entities. Nor can trade secret law, which requires secrecy as a protection criterion, shield it.²³¹

Without legal protection of ideas, truly innovative e-commerce systems will not be able to attract venture capital because of the fear that competitors will soon copy inventive ideas in the system.²³² Hence, e-commerce systems in particular may benefit substantially from proper patent protection.

b. Overbroad Internet business method patents

However, overbroad Internet business method patents may impede the advancement of the Internet. Indiscriminate granting of Internet business method patents may make an open Internet a closed one.²³³ According to Professor Lessig, the potential application of business method patents to cyberspace is limitless because "[e]very method of doing business in cyberspace by definition is instantiated in technology," thus in principle rendering every cyberspace method subject to a patent.²³⁴

The Internet has the character of "network effect," which means that more connection points give the Internet more value.²³⁵ The famous Metcalfe law says that Internet's use is proportional to the number of users.²³⁶ If some fundamental or basic operation of the Internet is under the umbrella of patents, some potential users will relinquish the desire to enter the Internet, thus reducing the network effect. In the meantime, this will allow big companies who can afford the cost of patenting business methods to absorb more users. As a result, only a few strong companies will enjoy the common benefit that an open Internet offers to all.²³⁷

²³¹ *Id.*

²³² Kuester & Thompson, *supra* note 165, at 674.

²³³ Lawrence Lessig, *Innovation, Regulation, and the Internet*, <http://www.prospect.org/print/V11/10/lessig-l.html> (last visited May 8, 2002).

²³⁴ Lawrence Lessig, *Patent Problems*, THE STANDARD, Jan. 21, 2000, <http://www.thestandard.com/article/display/0,1151,8999,00.html>.

²³⁵ CARL SHAPIRO & HAL R. VARIAN, INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY 174-175 (1999).

²³⁶ LARRY DOWNES & CHUNKA MUI, UNLEASHING THE KILLER APP.: DIGITAL STRATEGIES FOR MARKET DOMINANCE 23-25 (1998).

²³⁷ Zhi-An Lee, *From Reality to Virtual—Discussion About Internet Business Method Patenting* (on file with author).

Further, overbroad and low quality Internet business method patents may cause a chilling effect on e-commerce.²³⁸ For example, most of the e-commerce business method patents granted by USPTO do not have high creativity.²³⁹ They are simply transferred from the real world to computer programs. This phenomenon is causing great concern for the future development of the Internet. "The Patent Office is issuing patents for blindly obvious things just because they are being done with software or on the Internet."²⁴⁰ As Professor Lessig stated, some business method patents, which are not novel or non-obvious, become the "space debris of cyberspace."²⁴¹ In many e-commerce operations, the business methods employed have existed for a long time in real practice. For example, the famous Priceline.com's 'Name your price' patent is only the e-commerce version of the 'reverse Dutch auctions' that have existed for more than a century.²⁴²

Even more, overbroad Internet-related business method patents will deter potential new start-ups or small business from entering e-commerce in order to avoid the danger of infringement.²⁴³ The market entrance barrier for e-commerce is currently quite low. Many small companies and new start-ups will study and imitate well-established e-commerce companies, following the footsteps of successors to lower the risk of uncertainties and to save time and expense. However, as one opinion states:

Rather than encourage innovation, the legal actions of market leaders such as Amazon.com, Priceline.com and Doubleclick demonstrate how these patents actually curtail innovation by limiting competition. The convenience of a one-click purchase system would likely be adopted by many businesses, yet they now face the threat of legal action if they institute such a process.²⁴⁴

In addition, unlike the United States, the European community, or Japan, the e-commerce industry in China is still in its initial development

²³⁸ Seth Shulman, *Software Patents Tangle the Web*, Tech. Rev., Mar.-Apr. 2000, at 74, <http://www.technologyreview.com/articles/shulman0300.asp>.

²³⁹ Raskind, *supra* note 17.

²⁴⁰ Shulman, *supra* note 238.

²⁴¹ Lessig, *supra* note 234.

²⁴² R. P. McAfee & J. McMillan, *Bidding and Auctions*, 27 J. ECON. LITERATURE 699 (1987).

²⁴³ John W. Bagby, *Business Method Patent Proliferation: Convergence of Transactional Analytics and Technical Scientifics*, 56 THE BUSINESS LAWYER 423, 457 (2000).

²⁴⁴ Michael Geist, *A Patently Obvious Threat to E-Commerce*, at <http://www.globetechnology.com/archive/gam/E-business/20000127/TWGEIS.html> (last visited May 8, 2002).

stage,²⁴⁵ though with great potential.²⁴⁶ Different technical, commercial, and regulatory constraints exist to impede its advancement.²⁴⁷ For example, the telecommunications infrastructure has yet to be broadly upgraded to provide users with reliable high-speed Internet access.²⁴⁸ Furthermore, the usage of credit cards is low, as Chinese consumers still prefer to transact in cash or debit cards.²⁴⁹ Delivery cost is high because of the expense of courier services and the country's distribution infrastructures.²⁵⁰ At this stage of e-commerce development in China, people are still learning and imitating good ways of conducting business. Within this reality, broad patent protection on e-commerce business methods will curb the formation of new start-ups and thus the proliferation of e-commerce. The fear of stepping on others' patent rights may keep people from entering the e-commerce industry at all.

Lastly, patenting certain e-commerce methods may create unfair monopolies if granted because there may be only one way to transact business in a certain area. If granted patent protection, these monopolies may limit e-commerce development.²⁵¹

Hence, China should consider providing patent protection for business methods that are an integral part of a technical system, such as an e-commerce system; however, measures should be taken to prevent overbroad patent issuance.

c. Special measures necessary to ensure quality of Internet business method patents

High examination standards should be set for Internet business method patents. The examination process should filter out applications that may capture the standard of an industry area. For example, USPTO now requires secondary review on e-commerce patents, especially the ones that

²⁴⁵ China B2C E-Commerce Development Report, Apr. 4, 2000, at <http://www.chinaeclaw.com/zy/develop.htm>.

²⁴⁶ Internet Use Rises in China, Hong Kong, and Taiwan, *NUA Internet Surveys*, (Jan. 17, 2001), at http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905356351&rel=true (reporting that there were about 15 million Internet users in China in 2001). See also China Internet Development Surveys, available at <http://www.cnnic.net.cn/develst/report.shtml> (last visited May 8, 2002) (reporting that China's Internet user population and its infrastructure capacity will double each year).

²⁴⁷ Volker Pasternak, *China Could be the Next Frontier for E-Commerce, but Investors Need Creativity and Good Nerves*, 20 No. 12 E. ASIAN EXECUTIVE REP. 9 (1998).

²⁴⁸ Paul D. McKenzie, *Electronic Commerce Law—People's Republic of China*, 2 No. 10 E-COMMERCE L. REP. 24 (2000).

²⁴⁹ *Id.*

²⁵⁰ *Id.*

²⁵¹ JIANG, KONG & ARE LA MU SI, *supra* note 66, at 103.

have great potential for monopolizing an entire industry because there is only one way to conduct business in this area. Further, high examination measures should be employed to weed out applications lacking true innovation or involving merely a direct translation of manual business methods into e-commerce.

China should also consider employing creative means to establish a comprehensive database on business methods so that a good variety of prior art information will be available for reference to determine the validity of a business method patent application. For example, the Japan Patent Office asks the nation's economic organizations and industries to provide non-patent information on business methods.²⁵²

Further, the development of computer technology and e-commerce are very quick. Granting Internet business method patents the normal invention patent term of 20 years may impede the development of e-commerce. Therefore, a shorter duration should be considered for e-commerce or technical business method patents.²⁵³

Therefore, because of the open-code nature of the Internet and the technical characters of e-commerce business methods, Internet business methods may be patent-eligible subject matter. Yet, the patent protection should be construed so as not to discourage the open, creative and information sharing nature of the Internet or curtail the growth of the e-commerce industry in China.

VII. CONCLUSION

Chinese patent law aims to promote innovations in technology and the advancement of science.²⁵⁴ The U.S. patent system's stance of business method per se patenting, as shown in the *State Street* decision, is overbroad and ambiguous. Business method per se patenting not only over-stretches the concept of "technology," but also fails to promote the advancement of business by stifling business competition and mutual emulation. Further, business method per se patenting may produce more costs than benefits. Hence, China should not expand its definition of "technology" to include general business methods as patentable subject matter.

Instead, China should employ alternative legal means such as trade secret law, copyright law, and computer program protection rules to protect general business methods. However, because business methods in technical

²⁵² Policies Concerning Business Method Patents FAQ (2000), *supra* note 85.

²⁵³ JIANG, KONG & ARE LA MU SI, *supra* note 66, at 103.

²⁵⁴ Chinese Patent Law, *supra* note 19.

systems such as e-commerce systems cannot be protected by alternative legal means due to the open-code nature of the Internet, China should consider granting patent protection to business methods that are integrated into a patentable technical system. However, these patents should be subject to high examination standards in order to ensure their quality.