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Searching for Economic Balance in Business Method Patents*

Keith E. Maskus**
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I. INTRODUCTION

Business method patents (BMPs) award exclusive rights to inventors for novel techniques that perform commercial functions not embodied in specific physical inventions. These functions include the following: delivering services or products to customers; automating financial decisions; organizing accounting methods and product mixes; and coordinating procurement decisions among input suppliers. Thus, BMPs cover many circumstances involving straightforward interfaces between customers and firms.¹

Frequently, these novel techniques are expressed in computer programs that achieve a particular business application. Indeed, the justification for awarding BMPs stems from the recognition that functional aspects of software are patentable in the United States. Within this area of intellectual property, the following represent the four largest categories for which inventors seek protection: operations research and market analysis; advertising and other incentives for customers to purchase software; exchange of money through credit, banking, funds transfer, and the like; and management techniques for

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1. For example, Walker Digital Corporation owns a patent on the practice of "upselling," in which fast-food restaurant cashiers offer an additional product to customers in return for the change from the ordered transaction. See Julia Angwin, *Business-Method Patents, Key to Priceline, Draw Growing Protest*, WALL ST. J., Oct. 3, 2000, at B1.

accounting and inventory control.² Commercial interests in such patents have mushroomed in response to the rapid growth of E-commerce transactions. Indeed, BMPs are often labeled, somewhat misleadingly, “Internet patents.” Due to rapid technical changes and volatile product cycles on the Internet, firms often view BMPs as essential components for survival and growth.³

Recent growth in such patents is astonishing. The number of BMPs awarded by the United States Patent and Trademark Office (USPTO) rose from 165 in 1996 to 2,193 in 1998.⁴ The rate of issuance for Internet-related patents grew by more than 500% to 1,595 total patents during fiscal 1997-1998.⁵ However, one must note that applications for BMPs remain a relatively small percentage of total patent applications. There were 2,658 BMP applications in 1999, amounting to only 1% of total patent applications before the USPTO.⁶

The legal impetus for encouraging the patenting of business methods emerged in the *State Street* decision,⁷ where the Federal Circuit upheld the Signature Financial Group’s patent on the company’s “Hub and Spoke” system for making financial resource allocations and managing mutual funds.⁸ In dismissing *State Street Bank*’s claim that the system, as a mathematical abstraction, should not have been patented, the court clarified that computerized business-management programs meet general patentability criteria and are eligible for patent protection.⁹ Furthermore, the court also limited the terms under which mathematical algorithms may be

2. United States Patent and Trademark Office (USPTO), White Paper, *Automated Financial or Management Data Processing Methods (Business Methods)*, at <http://www.uspto.gov/web/menu/busmethp/index.html> (last visited Mar. 22, 2001).

3. See Teresa Riordon, *Patents Considered Vital to Thrive on the Internet*, N.Y. TIMES, Dec. 20, 1999, at C39.

4. William W. Fisher III, *Business Methods Patents Online*, at <http://eon.law.harvard.edu/property00/patents/main.html> (last updated Mar. 10, 2000).

5. David L. Hayes, *What the General Intellectual Property Practitioner Should Know about Patenting Business Methods*, at <http://eon.law.harvard.edu/h2o/property/patents/Hayes.html> (last updated Sept. 15, 1999).

6. USPTO, *supra* note 2.

7. *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998).

8. *Id.* at 1370.

9. *Id.* at 1377.

excluded.¹⁰ Many legal commentators believe that this decision radically expands the scope of patentability for business methods.¹¹ Others view the result as a natural recognition that business methods achieve industrially useful purposes and should be eligible for patent protection.¹² The latter approach implies that the issue is not one of subject-matter excludability, but rather a problem of overcoming the particular bars to a patent reward. To do so, an invention must be novel, contain an inventive step that is non-obvious to others skilled in the same art, and have industrial applications.

Indeed, the USPTO notes that business methods first attained patent protection in 1799 when the United States granted a patent for a technique useful in the detection of counterfeit notes.¹³ In its first fifty years, the USPTO granted forty-one BMPs for managing bills of credit, checks blanks, interest calculation tables, and other financial methods. In 1889, the agency granted its first automated BMP to Herman Hollerith, founder of the Tabulating Machine Company, which was later renamed International Business Machines, Inc. (IBM).¹⁴ The USPTO considers the current explosion of BMPs to be the result of widespread computing technologies and the growth of the Internet rather than the consequence of any change in fundamental procedures or definitions.

Despite this optimistic view, BMPs give rise to heated debate among legal scholars and Internet entrepreneurs. Beyond the issue of permissible subject matter, settled by *State Street*, critics raise essentially two objections. First, some BMPs appear to be based on ideas that can not reasonably be considered novel because similar methods have existed in various unprotected forms for some time. For example, Priceline.com's "reverse auction," in which purchasers list a maximum price and the software auctioneer finds a willing

10. *Id.* at 1374-76.

11. *Testimony before the Subcommittee on Courts and Intellectual Property of the House of Representatives Committee on the Judiciary Oversight Hearing on the United States Patent and Trademark Office*, 106th Cong. (2000), available at 2000 WL 282803 (testimony of Rochelle Cooper Dreyfuss) [hereinafter Dreyfuss].

12. Jared Earl Grusd, *Internet Business Methods: What Role Does and Should Patent Law Play?*, 4 VA. J.L. & TECH. 9 (1999), at <http://www.vjolt.net/vol4/v4i2a9-grusd.html>.

13. USPTO, *supra* note 2.

14. *Id.*

supplier, has antecedents in Dutch auctions and other selling methods.¹⁵ Similarly, Barnes & Noble contested the validity of Amazon's "one-click" patent on the grounds that other techniques involving a single operation by the consumer, contingent on the seller's ability to identify the consumer uniquely, were in operation prior to the patent's issuance in 1999.¹⁶ Ten years ago, for example, CompuServe permitted users to purchase stock-price graphs by pushing an on-screen button.

Second, many patents cover remarkably broad claims that could permit patentees to exclude competition in a wide swath of Internet applications. A prominent example of this class is a Sightsound.com patent. The company claims that the patent covers all electronic means for distributing digital audio or video recordings over the Internet. With such protection lasting twenty years from the date of application, the company will have a commanding position in electronic distribution, an expanding sector of the economy, and may exercise that power to stifle competition. In brief, BMPs are controversial because they provide broad and lengthy exclusivity for inventions that may not be particularly novel or non-obvious.

Naturally, the question arises of whether the protection of methods for organizing business will invite entrepreneurs in other areas of "cerebral subject matter" to demand patents. Presumably, it is now possible to patent computerized methods of instruction involving techniques for combining video-taped lectures, online data retrieval, and interactive questioning into a single format. If so, it is difficult to see why new instructional methods aimed solely at the classroom would not qualify for patent protection. If someone were to write a program that instantaneously transmitted electronic versions of economics graphs from an overhead projector or computerized projection to the notebook computers of students, could she not patent it and insist on earning royalties from anyone who employed such projections? Suppose that a pitching coach on a

15. Grusd, *supra* note 12, at ¶ 29.

16. The Federal Circuit agreed that "substantial questions" existed about the validity of Amazon's patent and removed the injunction against the use of a one-click system by Barnes and Noble. *Amazon.com, Inc. v. BarnesandNoble.com, Inc.*, 239 F.3d 1343, 1347 (Fed. Cir. 2001).

minor-league baseball team developed an effective new pitch, the “split-fingered curveball.” Perhaps the pitch itself would not be eligible for a patent,¹⁷ but the coach should be able to protect his instructional technique. If the claim was sufficiently broad, instructors at all levels would need to license the technique in order to use the pitch itself.

Perhaps because of the novel and intangible nature of business methods, BMPs commanded little attention from economists, even though legal scholars have covered selected economic issues implicated by BMPs in qualitative terms.¹⁸ In this paper, we hope to shed some light on the issue by considering economic arguments for awarding patents for business concepts. Many of these arguments focus on the wisdom of broad and exclusive rights in sectors that are critical for economic growth, where innovation is dynamic and incremental, and where standards and network effects are significant. In our view, economic analysis cannot support the BMP system as it currently operates. This conclusion is buttressed by the limited empirical evidence available for BMPs.¹⁹ In brief, the patent system is imbalanced in favor of inventors to the detriment of the public good. Thus, Congress and the USPTO should significantly modify the standards and procedures for granting and enforcing business method patents.

In Part II of this Article, we briefly discuss the structural problems in U.S. patent law that lead to excessive protection. In Part III, we analyze various economic aspects of BMPs and review some relevant empirical experience. Part IV is devoted to proposals for reform. Finally, Part V provides the conclusion.

17. A pitch may be patentable if it is novel and industrially useful and meets a low non-obvious standard. *See* Dreyfuss, *supra* note 11 (alluding to the patentability of a baseball pitch). For an early description of how patented football plays could affect competition in the National Football League, see generally J. Michael Finger, *The Uruguay Round Comes to the NFL* (Dec. 2, 1988) (manuscript, on file with author).

18. *See generally* Grusd, *supra* note 12; Dreyfuss, *supra* note 11; Robert P. Merges, *As Many as Six Impossible Patents before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 *BERKELEY TECH. L.J.* 577 (1999).

19. *See infra* Part III.

II. STRUCTURAL PROBLEMS IN BUSINESS-METHODS PATENT

Much of the concern about BMPs stems from shortcomings in the process by which the USPTO awards those patents. Significant problems exist with the examination system itself. First, despite recent increases in staff, there are so few patent examiners that each application must be handled quickly, with only a minimal search for prior art. Examiners tend to take the prior art listed in patent applications at face value and have insufficient time and resources to engage in more thorough searches.²⁰ Such pressures induce examiners to dispose of cases quickly. Moreover, examiners trained as engineers and scientists may lack the economic and business expertise necessary for evaluating the novelty of these inventions.

Second, the formal stock of prior art itself is quite limited because the USPTO did not issue many Internet patents before the mid-1990s.²¹ Software and business methods traditionally relied on copyrights and trade secrets protection, neither of which provide formal disclosure of their technical aspects.²²

Application of the non-obviousness requirement may also raise significant issues of patentability. As Grusd stated when describing the Priceline.com patent:

The issuance of this patent implies that it would not be obvious for a firm to take any standard business practice and apply it to the Internet. Such a loose interpretation of the nonobviousness doctrine implies that the nonobviousness requirement is no longer being used as a significant bar on commonplace inventions.²³

Furthermore, the absence of case law clarifying the standards that must apply to Internet business techniques leaves a vacuum for examiners who rely on patenting procedures that evolved in the context of tangible devices.²⁴ Finally, existing practice suggests that it

20. *Id.*

21. USPTO, *supra* note 2.

22. See Keith E. Maskus, *Intellectual Property Rights in the Global Economy* (Washington D.C.: Institute for International Economics, 2000) at 44-47, 59-60.

23. Grusd, *supra* note 12, at ¶ 29.

24. See generally Grusd, *supra* note 12.

is possible to program a computer to do something that is already in familiar social practice and patent the technique. This fact should remarkably shrink the required size of the inventive step.

If BMPs are issued with excessive breadth and questionable adherence to patentability requirements, they may be invalidated when the patentee attempts to judicially enforce her rights or as a result of re-examination proceedings. However, the American system is unusual in the zeal with which it raises obstacles to such challenges. First, the USPTO does not make patent applications publicly available until patents are awarded, thus precluding any possibility of early disclosure and pre-grant opposition proceedings.²⁵ Consequently, patents may only be revoked upon private party challenges. In itself, this procedure is costly and encourages complainants to settle before the re-examination is complete and accept licensing agreements. Second, the Federal Circuit erected a high bar to successful contests by ruling that issued patents are presumed valid unless challengers present clear and convincing evidence of error.²⁶ That is, complainants must believe that it is highly probable that a patent is invalid, in order to justify the cost of litigation. The Supreme Court solidified this standard in *Dickinson v. Zurko*,²⁷ holding that the Federal Circuit may reverse the USPTO's factual determinations "only when its findings are arbitrary, capricious, an abuse of discretion, or unsupported by substantial evidence."²⁸

We may finally note that the USPTO itself sees its role as one of helping inventors win patents, rather than one of balancing public interests among invention, commercialization, and dissemination.²⁹ This policy raises serious concerns about the level of commercial influence on the patenting process.

25. See Keith E. Maskus, *Canadian Patent Policy in the North American Context*, May 23-24, 2001, at 5 (paper prepared for the Conference Intellectual Property and Innovation in the Knowledge-Based Economy, sponsored by Industry Canada).

26. Dreyfuss, *supra* note 11, at 2.

27. 527 U.S. 150 (1999).

28. Dreyfuss, *supra* note 11, at 2.

29. See Brian Kahin, *The Expansion of the Patent System: Politics and Political Economy*, FIRST MONDAY (Jan. 2001), at http://www.firstmonday.org/issues/issue6_1/kahin/index.html.

III. ECONOMICS OF BUSINESS-METHODS PATENTS

At a basic level, the economic arguments for issuing BMPs are no different from those supporting protection for any other technology. Exclusive rights provide market advantages that encourage investment of time and effort in developing new and better techniques for organizing business. Such inventions, including their incorporation into applications software, may incur considerable research and development costs. Rival firms may easily appropriate the fruits of this labor in an environment of weak protection.

Property rights provide a level of legal certainty that permits inventors to commercialize their inventions through licensing and direct sales. Patent grants ensure disclosure of the technical information necessary to spur additional innovation. However, such exclusive rights bear the costs of restricting market access, supporting monopoly prices, and potentially providing the technical ability to block follow-up innovation. The extent of these costs depends on the scope of patent protection, especially the breadth of the claims recognized, as well as any limitations on the exploitation of rights that may ensue from competition regulation.

In the qualitative context, it is difficult to see a compelling economic argument that would support a blanket proscription against issuing BMPs. The claim that business methods are inherently mental constructions involving organizational techniques, more akin to unpatentable discoveries or algorithms than to tangible inventions, is not an economic argument. Many business methods do involve sweat of the brow, novelty, and inventiveness. Moreover, evidence suggests that an important component of technical progress is the simple reorganization within firms of processes such as accounting and quality control.³⁰ To the extent that entrepreneurs develop new methods for efficiently organizing production and ensuring delivery to consumers, one may raise a utilitarian argument for protecting those methods.

It would appear, therefore, that the issue is not whether business

30. See generally Robert E. Evenson & Larry E. Westphal, *Technological Change and Technology Strategy*, in 3A HANDBOOK OF INTERNATIONAL ECONOMICS, at 2227-46 (Jere Behrman & T.N. Srinivasan eds., 1995).

methods should be considered protectable subject matter. Rather, policy makers must determine if the current patent system over-protects inventors to such an extent that it threatens to slow down competition and the dynamic creation of business techniques, particularly on the Internet. Economists have long questioned the “one size fits all” approach of the U.S. patent regime, which largely fails to tailor its protection to specific fields of technology in terms of fundamental market characteristics. As we argue in this section, Internet business methods bear important dynamic characteristics that strongly question the wisdom of lengthy and broad protection. In conjunction with the structural problems discussed in the last section, we find the imbalance between inventor rights and the public good to be significant and worthy of attention.

A. What are the Economic Stakes?

Business methods essentially accomplish two types of goals. First, they reduce costs and raise productivity by finding improved techniques for managing processes, typically of a financial nature. Such management may be done within a firm or by contractors. Second, business methods reduce transaction costs between firms and consumers, largely through the Internet. Both types of innovation may be adopted comprehensively across industries, both through the use of general technologies and the development of numerous industry-specific applications. Thus, the potential coverage for any new business method is huge because they are inherently general and cross-sectoral in nature.

E-commerce remains a dynamic and rapidly growing sector despite the recent correction in stock valuations and the inevitable shakeout of inefficient firms. The Internet has penetrated business and home operations on a global scale with remarkable speed; it took only four years for the Internet to reach 50 million users.³¹ One analyst projects that by the year 2005, E-commerce transactions in the United States alone could exceed \$6 trillion, though other

31. See CATHERINE MANN, GLOBAL ELECTRONIC COMMERCE: A POLICY PRIMER 13-17 (2000).

estimates are far smaller.³² More importantly, 90% of U.S. firms already claim that E-commerce will soon affect how they do business, demonstrating the wide applicability of this technology. Analysts anticipate the growth of E-commerce to be particularly large in business-to-business transactions, as it provides the ability to source inputs across borders.

Viewed in economic terms, E-commerce is a powerful tool for integrating markets by reducing distribution costs between enterprises and consumers as well as suppliers and producers. Given the high costs of traditional distribution methods, the Internet is very likely to enjoy extensive expansion as a channel for commercial activity. As with any other distribution technology, however, industries must develop efficient protocols for communication, ordering, payment, and delivery. At its core, this is what E-commerce strives for: business methods that efficiently conjoin the interests of consumers and firms to achieve commercial success. The analytical question is whether patents are a boon or a hindrance to this development.

B. Fundamental Economic Characteristics

Business methods patents are controversial in large part because of certain basic characteristics of the inventions they protect. First, methods are processes for achieving certain tasks and outcomes, such as information collection and preference identification, that may find application across a wide array of business activity. In that sense, they differ fundamentally from inventions aimed at solving a specific engineering problem. Accordingly, patentees may seek exceptionally broad protection, covering all potential applications and excluding rivals from developing, even with significant independent effort, techniques for achieving the same end.³³

Second, business methods often appear to be familiar commercial practices that are applied to electronic markets simply by their

32. *Id.* at 16. We list it here only to illustrate the optimistic projections that exist for this sector. See discussion *infra* Part IV (noting that this estimate is wildly inflated).

33. Thus, they are like research tools in biotechnology, which have also attracted criticism for their wide scope.

incorporation into computer programs. It is a stretch to claim that Amazon.com's single-click patent or Priceline.com's reverse-auction patent reward true novelty in the area of business methods. Rather such methods extend software to the patent realm that would ordinarily rely on market lead time, copyrights, and trade secrets for protection. This situation rewards a thin edge of creation with a thick wedge of protection. At the same time, advocates of BMPs argue that software copyrights are easy to improve upon and that computer programs cannot be effectively safeguarded by trade secrets. In that context, failing to reward patents would eviscerate the business method invention that gives rise to the computer program.

Third, many of the processes and services that BMPs attempt to sort out are rapidly evolving and subject to short life cycles. E-mail protocols, electronic purchasing, downloading technologies, Web site design architectures, and computerized investment-management strategies are all examples of processes that are new and subject to continuous evolution. Entry into the markets that provide such services is relatively straightforward because consumer preferences shift rapidly and protocols and processes are overtaken in the marketplace.

In such a dynamic and uncertain environment, process developers need to establish product loyalty through quality differentiation, cost advantages, or other means of distinguishing themselves from competitors. It is evident that the more lasting a commercial advantage is perceived to be, the more readily capital markets will finance its development and improvement. Thus, it is of little surprise that venture capitalists working in E-commerce place high value on the apparent security of Internet patents. Many participants in the E-commerce and information technology sectors view BMPs as crucial to their survival and growth as commercial entities.³⁴

A fourth characteristic of business methods, at least as they are commercialized through the Internet and software, is that they may accentuate and solidify network effects. In economic parlance, a network externality exists when the advantages of joining an information-technology network, or purchasing a particular piece of

34. Riordan, *supra* note 3.

software, rise with the number of users.³⁵ The benefits may be as simple as enjoying increased communications with people, but there are also technological and pecuniary gains. Users prefer interoperable software and communication protocols to share work files. Larger networks attract complementary software which improves connections and, being subject to economies of scale, reduce computing costs.

Network economies have potentially important impacts on competition. Significant advantages accrue because of the associated declining costs and rising demand to those suppliers that can expand their “installed base” of users most rapidly. Once a network or program achieves a critical size, it is possible for users in other systems to switch to the network in rapid succession, potentially destroying competitors. Many analysts believe this “tipping effect,” and the tendency for users to get locked into the use of a single network or software standard, is a source of considerable market power.

Since business methods are complementary to network technologies, they may enhance these impacts. Suppose that individuals benefiting from an Internet connection also prefer the service of electronic shopping arcades. The benefit of visiting an arcade increases with its size. For example, size could be important to electronic booksellers if they utilize their market power to convince publishers to allow the availability of catalogues through their medium, either exclusively or through a non-exclusive licensing contract. Perceiving the available catalogues and browsing opportunities to be greater with larger electronic booksellers, consumers may often be “tipped” into visiting the largest outlet (or bookseller), thereby further raising its scale. Even a seemingly small convenience bestowed on a particular competitor, such as a one-step checkout procedure, would enhance this possibility by appealing to consumers.

It is in this area that BMPs present their most significant change in fundamental business models and challenge to dynamic competition. Traditional retailing involves discrete visits of consumers to different

35. See CARL SHAPIRO & HAL R. VARIAN, INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY 12-14 (1999).

locations. In that environment, it makes little sense to patent methods of selling because any commercial gains would be exceeded by extensive transactional costs in securing and monitoring patent compliance.

Electronic selling, however, is quite different. Determining the similarity of retailing (or wholesaling or licensing) methods among rivals is straightforward for firms because transactions are handled through the Internet. Combined with the potential for large returns associated with network effects, the Internet has greatly increased the private gains to BMPs while reducing their costs of implementation and enforcement. Moreover, a broad patent, with comprehensive appeal issued for a distribution technique, poses a considerable entry barrier for second comers. This condition is problematic for competition in direct terms and may also encourage ultimate sellers, such as publishers, music companies, and input suppliers, to arrange their Internet sales through protected methods.

C. BMPs and the Stimulation of Invention

In *State Street*, the Federal Circuit clarified that business methods are patentable, and the relevant issue is whether they attain the standards for receiving protection. This strict legal interpretation remains consistent with the American notion that virtually anything that may be invented by humankind is patentable.³⁶

The ruling, however, pays no attention to the economics of BMPs. A utilitarian calculation would question whether the promise of patent protection induces a flow of invented business methods which are placed in commercial practice and that generate a surplus of social benefits over costs. A series of questions arise with this issue.

First, are BMPs necessary to promote invention and the commercialization of business techniques on the Internet? If not, then providing exclusive rights for inventions that would be developed in any event becomes socially wasteful. No direct evidence pertains to this question and we do not believe a definitive answer exists. Many commentators point to surveys of U.S. enterprise managers regarding the impact of potential patent protection on research and development

36. *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980).

programs.³⁷ These surveys find that, except for a few research-intensive industries with easily imitated technologies such as pharmaceuticals and biotechnology, firms rank patents well behind natural market advantages, such as first-mover advantages, lead times in building market loyalty, and trade secrets. Unfortunately, these surveys were conducted before the onset of widespread patenting of business methods in the late 1990s. If the surveys were replicated, the new findings may bring into serious question the existence of social gains from BMPs. We would anticipate, however, that given the characteristics discussed above regarding business methods, practitioners would claim they view patents as critical for earning returns and attracting capital. Such answers would be of positive interest only if they demonstrate no net social gains to BMPs.

An alternative method of analysis is to contrast innovation experiences between countries with different forms of intellectual property protection. Unfortunately, such a study would presently be premature because no other country has advanced as far as the United States in recognizing BMPs. The European Patent Office (EPO) recently moved toward a more expansive view of patentability from its prior insistence that business methods lack technical character and, therefore, could not be patented. The EPO now recognizes that embodiment in a computer technology provides sufficient technical basis for an invented business method.³⁸ In the last two years, the number of applications for BMPs at the EPO has doubled, totaling approximately 400 in the year 2000.³⁹ Additionally, the Japanese Patent Office (JPO) issued guidelines concerning its treatment of BMPs in 2000.⁴⁰ While it clearly recognizes the patentability of business method inventions, the JPO proposes to enforce a higher standard than does the USPTO. Specifically, application of the standard would deny patent protection when the invention may be

37. See Richard C. Levin et al., *Appropriating the Returns to Industrial Research and Development*, in BROOKINGS PAPERS ON ECONOMIC ACTIVITY 783 (1987).

38. EUROPEAN PATENT ORGANIZATION'S ADMINISTRATIVE COUNCIL, *Report on the 80th Meeting of the Administrative Council of the European Patent Organization*, 7 O.J. 307-09 (2000).

39. *Id.*

40. JAPANESE PATENT OFFICE, *Policies Concerning Business Method Patents*, at <http://www.jpo-miti.go.jp/saikine/tt1211-056.htm> (last modified Nov. 30, 2000).

easily conceived through combining publicly known methods with common techniques in business and knowledge of standard computer technology.⁴¹ It will be interesting to observe how companies compete in the BMPs area under these differing regimes.

Because a direct comparison of national standards is not feasible, a look at indirect evidence may be illustrative, though hardly definitive. One approach is to consider the nature and pace of innovation in countries other than the United States where BMPs are not protected or are done so under different terms. One important purpose of BMPs is to protect computer programs that affect a particular business application, such as bookkeeping methods, financial consulting, medical-records management, and electronic auctions. Recent field research in China and Lebanon, where software was barely protected by copyrights and remains ineligible for patents, turned up the interesting similarity that in both countries there was a thriving industry devoted to developing business-applications software.⁴² Competition was built on open-source protocols among software firms, with each firm attempting to develop a niche product. Programmers interviewed in China and Lebanon pointed to the importance of open standards that could be freely studied. Indeed, this business model is consistent with economic analysis of the gains to open-source programming in industries where no firm has a dominant position and all firms at times are information creators and at times need to be information borrowers.⁴³

A second example relevant to the debate over BMPs is that the structure of the Japanese Patent System (JPS) from 1960-1994 significantly contributed to technical change and productivity growth

41. *Id.* at 2.

42. See Keith E. Maskus et al., *Intellectual Property Rights and Economic Development in China*, at http://www.nbr.org/regional_studies/ipr/chongquin98/maskus_essay.html (last visited Mar. 22, 2001); Keith E. Maskus, *Strengthening Intellectual Property Rights in Lebanon*, in *CATCHING UP WITH THE COMPETITION* 251 (Bernard Hoekman & Jamel Zarrouk eds., 2000).

43. See generally JOSH LERNER & JEAN TIROLE, *THE SIMPLE ECONOMICS OF OPEN SOURCE* (Nat'l Bureau of Econ. Research, Working Paper No. 7600, 2000), available at <http://www.nber.org/papers.w7600>. These authors note that several major information-technology firms have launched projects to develop and use open-source software, suggesting that access to capital may not be a significant problem.

in the Japanese economy.⁴⁴ The JPS was characterized by early patent disclosure, the possibility of pre-grant opposition, and the availability of utility models for protecting small-scale, incremental innovations with a lesser inventive step. Under this system, which clearly favored diffusion of new technical information into the Japanese economy over fundamental invention, Japanese enterprises successfully advanced technical knowledge and developed that knowledge into marketable products.⁴⁵ These small inventions supported extensive systems of cross-licensing. This history shows that in an environment of dynamic competition based on small adaptations of technology to specific uses, relatively weak protection does not necessarily limit entrepreneurial incentives. Indeed, recent literature suggests that weak protection may be advantageous for initiating a sequential system of innovation and may build complementary relationships among products.⁴⁶ In such sectors, strong patents may slow down innovation and reduce joint industry profits in the long run.

It is questionable whether this evidence implicates BMPs as unnecessary and protectionist. The United States is different from China, Lebanon, and Japan. Additionally, competition to developing new business methods is not the same as competition in software. Nonetheless, the parallels in the development of BMPs and software are worth considering. If BMPs tend to be incremental inventions with little inventiveness or novelty, patents may protect rents without creating social value for consumers and avoiding industrial progress.

D. Potential Effects of BMPs

While the preceding comparison is instructive, the jury is still out on whether some BMPs could support advances in productivity, product diversity and the development of electronic markets. It is easy to confuse the Internet, a medium supporting a global web of

44. See Keith E. Maskus & Christine McDaniel, *Impacts of the Japanese Patent System on Productivity Growth*, 11 JAPAN AND THE WORLD ECON. 557 (1999).

45. See generally *id.*

46. See generally JAMES BESSEN & ERIC MASKIN, *SEQUENTIAL INNOVATION, PATENTS, AND IMITATION* (Mass. Inst. of Tech., Working Paper No. 00-01, 2000); Jerome Reichman, *Of Green Tulips and Legal Kudzu: Repackaging Rights in Subpatentable Invention*, 53 VAND. L. REV. 1776-78 (2000).

communications, with E-commerce, which is the use of that medium for conducting market transactions. The fact that the former technology rapidly expanded in an environment of open access and market-generated standards does not imply that E-commerce markets will achieve maturity without definition and protection of property rights. Indeed, despite predictions of remarkable growth in E-commerce in the short term, such transactions remain a relatively small component of distribution in the developed countries and have barely penetrated markets in less developed countries.⁴⁷

Therefore, it is possible that E-commerce could expand even faster if BMPs created incentives for developing and commercializing techniques that support orderly marketing on the Internet. Such techniques would include methods for enhancing security, permitting consumers to select and transfer electronic files and payments, supporting firms in calculations of optimal purchasing programs from competing input suppliers, and allowing clients to compute beneficial mixes of financial instruments. Efficient licensing of protected inventions could support the development of electronic markets, both domestically and internationally.

Against this sanguine possibility, policy makers must weigh the significant potential for anti-competitive uses of patent rights associated with network impacts and standards as discussed above. While it is unlikely that many BMPs would support more than marginal levels of market power, patents that protect selling methods or research protocols with widespread application could be the source of long-lasting monopolization. Such monopolization may assert itself in several forms of anti-competitive behavior, including refusals to license, extension of market power from the business method itself to product markets through exclusive arrangements, and restraints on

47. Note that the estimate provided earlier that E-commerce would reach \$6 trillion by 2005 is surely inflated. *See supra* note 32 and accompanying text. Total sales by manufacturing, retail, and wholesale trade firms in the United States amounted to perhaps \$9.7 trillion in 2000, with the trade component being perhaps \$5.5 trillion. Assuming that these figures grow by 3% annually between 2000 and 2005, the comparable figures for the latter year would be \$11.2 trillion and \$6.4 trillion, respectively. Thus, for E-commerce sales to reach \$6 trillion, they would need to take up 54% of gross sales of all goods and 94% of sales in the trade sector. The latter estimate could only imply a massive collapse of traditional retailing and wholesaling, which seems unlikely within four years. *See generally* COUNCIL OF ECONOMIC ADVISORS, ECONOMIC REPORT OF THE PRESIDENT (1998).

entry through pre-emptive threats and litigation. In turn, BMPs might slow down innovation and restrain growth of the Internet and E-commerce. This potential is significant in the presence of broad patent protection, which seems an unduly generous reward for little true innovation.

An additional problem with BMPs is that, where invention costs are small in relation to the substantial rewards from exclusivity, BMPs may generate wasteful patent races and rent seeking. Moreover, firms that wish to develop or use competing technologies must engage in costly searches into the coverage of existing patents to avoid infringement.⁴⁸ Finally, to the extent that investment capital flows into firms on the basis of a protected market position rather than new innovation, firm survival may be based more on the attainment of BMPs than dynamic competition.⁴⁹

IV. POLICY ANALYSIS

The following policy initiatives are particularly worthy of consideration and debate. Not all changes are feasible within the constraints of the current system and the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). In particular, it is problematic to envision a separate patent regime for BMPs, even considering the particular characteristics of business methods.

48. See *10 European Industry Leaders Raise Concerns about Software Patents*, LINUX WKLY. NEWS (June 19, 1999), available at <http://lwn.net/1999/0624/a/10leaders.html>.

49. We doubt the significance of this factor to date on the Internet. To illustrate, between October 1999, the date at which Amazon.com's "one-click patent" was issued, and July 2000 the price of Amazon's Internet stock fell by 61% while that of Barnes and Noble's Internet stock fell by 68%—hardly a decisive difference. If the price decline were measured from December 1999, when the restraining order was issued, the Amazon price decline becomes larger than the Barnes and Noble price decline. A more informative study would be to look for unusually large relative changes in these stock prices in the days before and after the patent was awarded and the injunction was issued.

A. Examinations and Funding

The USPTO could achieve considerable improvement in its examination procedures if examiners were more attentive to relevant prior art and were able to search beyond patent applications for evidence that inventions are not novel or obvious. The agency should not award patents to ideas that were already known and in use in other forms of business if the invention submitted simply proffers a new format, on the grounds that such inventions are obvious. The patent office needs more examiners so that each may devote more time to individual applications. Additionally, examiners need to be better skilled in business arts. It is evident that more critical examination procedures would lead to a significant reduction in BMPs issuances.

B. Opposition Proceedings and Validity Challenges

It is remarkable that the United States permits no effective opposition proceedings prior to patent grants. To facilitate more effective opposition procedures, the USPTO could consider earlier disclosure of applications for BMPs.⁵⁰ Concerning patent challenges, the bias in favor of validity elucidated by the courts seems excessive in its caution because it creates significant costs to litigation and encourages filing for broad claims on slim inventions.

C. Patent Scope and Duration

The patent system encourages excessively broad claims, often covering potentially wide arrays of business competition. Examiners could be encouraged to approve claims for protection only on the particular applications for which the invention is developed, to the extent such limitations may be identified, and require full disclosure of the technical details. At the litigation stage, courts could examine claims more carefully for excessive breadth.

50. See Dan Johnson & David Popp, *The Timing of Patent Disclosure and the Size of Innovation* 22 (Nov. 17, 1999) (manuscript, on file with author) (arguing that the dissemination benefits of early disclosure outweigh the possible costs in terms of innovation).

Given the difficulty of achieving the task of precise identification of uses, however, an appropriate alternative would be to limit the length of protection to a period far less than twenty years. It is evident that such a change would require renegotiation of the TRIPS accord, unless it were achieved through a system of utility models. Finally, the potentially broad scope of protection granted by BMPs in their current guise underscores that anti-trust authorities need to be vigilant in disciplining anti-competitive behavior that threatens to stifle innovation on the Internet.

V. CONCLUSION

A review of the logical arguments and limited evidence supporting BMPs available leads to the following conclusion. As currently structured, business-methods patents do not strike an appropriate balance between the economic interests they implicate. The system favors the USPTO granting extensive property rights to inventions of limited non-obviousness and questionable novelty. This conclusion does not suggest that the United States should render business methods unpatentable. Rather, it urges a critical consideration of the patent system with a view of moving it towards a more balanced set of incentives.⁵¹

51. Dreyfuss, *supra* note 11 (advocating the elimination of BMPs); *see also* Lawrence Lessig, *Online Patents: Leave Them Pending*, WALL ST. J., Mar. 23, 2000, at A22; James Gleick, *Patently Absurd*, N.Y. TIMES MAG., Mar. 12, 2000, at 44. *But see* Grusd, *supra* note 12 (favoring reform based on the precedent of special treatment for biotechnology patents).

