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Internet Business Method Patents

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The ease with which software and business models can be replicated in cyberspace, along with the culture that maintains "if it's online it is open to all," has pushed many companies to create or expand patent portfolios to capture and protect all aspects of their online business operations. In addition to protection, many firms and individuals have acquired such patents for profitable licensing opportunities, regardless of whether they intend to employ these business operations. These patented operations include not only the software and Internet technology needed to facilitate transactions, but also the Internet business methods—that is, the new ways of conducting a business or an aspect of a business that are enabled by the Internet infrastructure. (Amazon.com, for example, has patented both its 1-Click method of checking out and its website "affiliates" program. Under the affiliates program, an affiliate site that signs up with Amazon receives a fee every time a book is bought from Amazon as a result of a click-through from that site.)

Traditionally, most observers considered patents on business methods to be outside the scope of the Patent Act. By the mid-1990s, however, the United States Patent and Trademark Office (PTO) made clear in its examination guidelines for patent applicants that the office would issue such patents.[1] Moreover, in a 1998 patent infringement lawsuit over a software-enabled business method, the Federal Circuit Court of Appeals—the main court for deciding patent matters—endorsed this policy. In the 1998 case, *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, the court held that a financial service provider's patent on "business method" software that operated a hub-and-spoke investment portfolio system was valid and enforceable against a competitor who was using the software-enabled business method. The court stated that the long-held business method exception to patentability was "ill-conceived" and should not be used for holding an invention unpatentable.

The rise of the World Wide Web, the change in PTO policy, and the endorsement of the Federal Circuit prompted a flood of Internet business method patent applications. Only 170 applications for business method patents were filed in fiscal year 1995. By 1999, the number of business method patent applications received and granted by the PTO had increased to 2,700 and 583, respectively; in 2000, to 7,900 and 899 in 2000. The number of applications was expected to reach 12,000 for 2001.

The Controversy: Inventiveness and Distribution

This increase in the number of Internet business method patents applied for and received concerns many critics of the patent system, who argue that granting Internet business method patents is bad for innovation, making it more difficult for the diffusion of ideas and entrepreneurial activity often associated with the Internet. Critics also contend that Internet business method patents are too easily granted by the PTO and are "weaker" than other patents because of inadequate reference to *prior art* in the patent applications. Prior art refers to related inventions that can be found in the body of previously patented inventions

("patent prior art")—or inventions publicly known through, for example, journals, public press, and technical reports ("non-patent prior art")—that the patent office or court analyzes before granting or denying a patent to a comparable invention. Non-patent prior art in the area of business methods may include programmed e-commerce website applications, literature and websites suggesting specific sales techniques for the Web, and possibly the entire field of business practices (non-software implemented).[2] Some critics argue that larger business organizations will become Internet patent mills, able to squeeze out small entrepreneurs with new property rights over Internet business activities.[3] Another concern is that U. S. firms may be gaining an unfair advantage in patenting in this area inasmuch as Japan and Europe have been slower to adopt a pro-patent stance to business methods.

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Congress responded to the prior art criticisms with several proposed and enacted reforms, most of which focused on reforming the processes through which the PTO reviews business method patents, especially prior art.[4] Congress also passed the First Inventor Defense Act of 1999, which allows firms to be excused from violating a business method patent if that firm could prove that it used the invention more than one year before the filing of the business method patent. This provision was important to ensure that companies that had relied on trade secret protection for their business methods would not be undermined by the expansion in patent protection.

In response to the criticism and the scrutiny of Congress, the PTO also initiated several reforms. These included, for example, an outreach to the business industry for their input in establishing within the PTO a non-patent prior art database of "business data processing" methods; the mandatory searching of U.S. and foreign patent documents and non-patent literature; an enhanced examination process for business method patents, entailing a broader, mandatory search by examiners for prior art related to these applications; a new, second-level of review to ensure compliance with the mandatory search requirements; and the rare action of retracting a recently issued business method patent over subsequent concerns about its novelty and non-obviousness.

These reforms have affected the rate at which business method patents have been granted. In a recent internal study, the PTO found that it had granted just 36 percent of the business method patents it reviewed in the quarter ending March 2001, down from 56 percent in the quarter ending March 2000. Overall, the PTO last year granted 182,223, or 72 percent, of the overall patent applications it reviewed.[5]

What the Data Show

To evaluate some of the concerns regarding Internet business methods, we examined a full set of 1,093 Internet business method patents issued from January 1, 1990 to January 1, 2000 (I-business method set), most of which were issued during the last three years of the decade.[6] We compared these with a random set of 1,000 patents issued by the PTO across all fields of invention between mid-1996 and mid-1998 (general patent set) to see how Internet business method patents stacked up in terms of prior art and ownership, both in terms of entity size and foreign v. U.S. ownership.[7] Most of the patents from the I-business method set were issued after 1996, so the time periods of the two data sets are compatible for comparison.

When compared against the general patent set, the I-business method patents fared well in terms of the amount of prior art cited in the patent.[8] Contrary to critics' arguments, the average (mean) number of total (patent and non-patent) prior art references in a patent was, at 24.9, larger for I-business method patents than for general patents (15.16). The same was the case for the non-patent prior art reference averages: the I-business method set average, at 10, was larger than that for the general patent set (2.37). This is especially relevant to the debate over whether I-business method patents are being properly reviewed by the PTO inasmuch as most of the prior art for a business method would be expected to come from non-patent resources (e.g., business and academic literature, websites, and software).

We also compared the PTO entity status of the general and Internet patent owners, including whether a patent was owned by an individual, small business (500 or fewer employees) or a large business (more than 500 employees). We found that a larger

share of I-business method patents were owned by small business (19.4 percent) when compared to small business ownership of general patents (10.7 percent). Large entities owned a smaller share of I-business method patents (63.13 percent) when compared to large entity ownership of general patents (70.7 percent). These results were statistically significant. The percentage of individual owners of each patent remained roughly the same. The results suggest that large companies do not receive patents on Internet business methods any more than for patents in general.

With respect to international competitiveness, there is evidence to support the concern that U.S. companies are being awarded a disproportionate share of Internet-related patents. We found that inventors in Europe (Internet 2.3 percent, General 17.3 percent), Japan (Internet 5 percent, General 21.4 percent), and other foreign countries (Internet 0.5 percent, General 5.9 percent) obtain Internet business method patents at a much lower rate than U.S. inventors, compared to the patents foreign owners receive more generally.

With respect to international competitiveness, there is evidence to support the concern that U.S. companies are being awarded a disproportionate share of Internet-related patents.

Conclusion

Companies operating over the Internet have aggressively pursued business method patents in recent years. While there has been much criticism about the PTO's generosity in granting such patents, recent reforms may have curtailed much of the perceived abuse, or at least mollified many of the PTO's critics regarding business method patents. Evidence from our recent study suggests that critics of the PTO's handling of business method patents, at least those that are Internet-related, may have overstated the case. We found a surprising amount of prior art in I-business method patents. Furthermore, we did not observe a significant imbalance between firm size and the issuance of I-business method patents, although the evidence was very crude in its measurement. We did find that U.S. firms were far ahead of their European and Japanese counterparts in attaining these patents, compared to the division of patents more generally among these players.

Notes

1. See U.S. Patent & Trademark Office, Examination Guidelines for Computer-related Inventions (Feb. 1996).
2. American Intellectual Property Law Association, White Paper on Patenting Business Methods (November 27, 2000).
3. William Gurley, "The Trouble With Internet Patents: Creating Rents for the Few to the Detriment of the Many," *Fortune*, July 19, 1999. (See <http://www.fortune.com/indexw.jhtml?channel=artcol. jhtml&doc_id=43712>)
4. These include, for example, the publication of any patent application claiming a business method eighteen months after filing; the establishment of an Administrative Opposition Panel to allow any person, within nine months of the issue date of a business method patent, to challenge the validity of the patent; and the requirement that a person challenging the validity of a business method patent demonstrate invalidity only by a preponderance of evidence (rather than the clear and convincing standard applicable to all other types of patent).
5. William L. Bulkeley, "U.S. Cuts Issuance of Business Patents for Work Methods," *Wall Street Journal*, March 22, 2001 (reporting results from Esther Kepplinger, deputy commissioner for patent operations).
6. John R. Allison and Emerson H. Tiller, *Statistical Analysis of Internet Business Method Patents*, Report to the National Academy of Sciences, STEP Board (2001).
7. This random set was generated in a previous study on patent litigation by John Allison and Mark Lemley. John R. Allison & Mark A. Lemley, *Who's Patenting What? An Empirical Exploration of Patent Prosecution*, 53 Vanderbilt L. Rev. 2099 (2000).
8. A full description of the statistical tests performed can be found in John R. Allison and Emerson H. Tiller, *Statistical Analysis of Internet Business Method Patents, Report to the National Academy of Sciences*, STEP Board (2001).

Internet Business Method Patents in the United States, 1990-1999

	Total	Percentage of U.S. total
U.S.	1,093	--
Texas	64	5.9
Dallas-Fort Worth	30	2.7
Austin	21	2.0
Houston	8	0.7
San Antonio	5	0.5

A Study in Contrasts

Professional Visas Under NAFTA

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Noteworthy differences mark the U.S. requirements for NAFTA visas for Canadian professionals and those for professionals from Mexico. The agreement requires the three countries to grant temporary entry[1] to citizens under four categories: business visitors, traders and investors, intra-company transferees, and professionals. To qualify in the last category, the profession must be included in a NAFTA list of more than sixty professions, and the professional must have the specified educational qualifications.[2] Currently, the United States imposes no limit on these visas, also known as TN visas, for Canadian professionals but restricts Mexican professionals to 5,500 visas per year. This limit is due to be phased out January 1, 2004. The extensive NAFTA list of professions means that a large number of Mexicans will soon qualify for temporary entry visas, which if the U.S. government respects the date for eliminating this quota, could noticeably affect competition between Mexican and U.S. professionals in the border region.

The Requirement Gap

In addition to the numerical limit, Mexican professionals face more onerous visa requirements than Canadians. Both must have a letter offering employment in the United States, proof of citizenship, and proof of professional engagement in one of the listed occupations. Mexicans must also show a non-immigrant visa, a prior petition by the employer, and Department of Labor certification. Canadians can apply for the visa at the border, but Mexicans must apply in advance at a U.S. consulate or embassy.

The Department of Labor certification is the most difficult barrier. The certification requires proof that U.S. workers will not be adversely affected by the granting of the visa. It consists of attestations by U.S. employers as to the numbers of U.S. workers available to undertake the employment sought by an applicant and the effect of the applicant's employment on the wages and working conditions of U.S. workers similarly employed. Determination of labor availability in the United States is made at the time of a visa application and at the location where the applicant wishes to work.

Compared to other types of U.S. visas, NAFTA visa requirements for Canadian professionals are quite simple. Hence, Canadian professionals (and their U.S. employers) now use this visa more than any other U.S. non-immigrant visa. Of the more than 100,000 Canadians admitted under fifteen non-immigrant visa categories in fiscal year 1999, almost 62 percent used the TN visa. Moreover, it appears that significantly more Canadians are using temporary work visas, rather than permanent visas. In a Canadian survey of 1995 university graduates who moved to the United States, 90 percent entered with a temporary visa, and 72 percent of those used a TN visa. Canadian professionals can renew their TN visas annually and remain indefinitely in the United States (as long as they do not *intend* to stay *permanently*), effectively integrating this sector of the U.S.-Canadian labor market.

In fiscal year 1999, the United States admitted 68,354 non-immigrant workers under the TN visa: 67,076 of these were from Canada and 1,278 were from Mexico. This disparity in the numbers indicates that the additional requirements imposed on Mexicans restrict access to TN visas more than the limit of 5,500 visas per year. As long as those requirements remain in place, the removal of the limit in 2004 is unlikely to result in a large increase in the numbers of TN visas granted to Mexican professionals.

The Qualifications Gap

Another possible explanation for the paucity of visas granted to Mexican professionals is that their qualifications differ significantly from those of their Canadian and U.S. peers. This results in a relative lack of mutual recognition or certification procedures for Mexican professionals in the United States. (For example, the United States has offered an equivalency exam for Canadian chartered public accountants for some time, but only recently began to implement a similar mechanism for Mexican accountants.) Furthermore, licensing and certification of professionals is often governed by independent professional organizations. In many cases, therefore, the government has delegated the power to determine, via temporary or permanent licenses, whether professionals from other countries are qualified to practice. For this reason, NAFTA only requires that governments "shall endeavor" to have self-governing professions follow certain principles in licensing and certification procedures, which is clearly non-obligatory.

The numbers in the following table indicate that when skilled Mexicans and Canadians face the same visa requirements, similar numbers qualify for entry. The removal of the labor certification requirement for NAFTA visas for Mexicans would likely produce a much greater impact than the removal of the 5,500 quota. If Mexican professionals become subject to the same requirements as Canadians, it would be easier for U.S. employers to recruit in Mexico than overseas. In border states such as Texas and California, this could dramatically increase the cross-border provision of professional services.

Other Options

The H1B visa program is comparable to the TN visa. Under this program, the United States issues six-year visas (renewable after three years) to foreign-born workers with college degrees and special skills. H1B classification applies to persons in specialty occupations that involve the theoretical and practical application of a body of highly specialized knowledge requiring completion of a specific course of higher education. This classification requires certification by the Department of Labor. Although primarily aimed at high-tech workers, the program includes other professionals such as architects, engineers, and university professors. At present, nearly 50 percent of these visas go to workers from India, with China in second place.

As of November 2001, the Immigration and Naturalization Service had approved 163,200 H1B guest worker petitions against the fiscal year 2001 limit of 195,000. Approximately 29,000 petitions were still pending, bringing the total number of requested H1B visas to 192,000. An additional 30,000 H1B visas applications pending from fiscal year 2000 were processed in 2001 under a special exemption, and 135,000 additional H1B visas were granted under an open exemption provided to research and academic institutions, bringing the total to more than 300,000.

The requirements for Mexicans are virtually the same for H2B and TN visas. However, Mexican professionals use ten times more H2B visas to work in the United States. It is not clear whether this is due to the limit on TN visas for Mexican professionals, the longer duration of the H2B visa, or lack of employer awareness regarding the TN visa option.

Conclusion

Despite the apparent availability of temporary work visas for Mexican professionals under U.S. non-immigrant visa programs and NAFTA, and the geographic proximity of Mexico, relatively few Mexican professionals secure visas. Making U.S. requirements for Mexicans the same as Canadians under TN visas would increase the attractiveness of Mexican professionals to U.S. employers by making recruitment faster and easier. This would facilitate the cross-border provision of services, particularly in the U.S.-Mexico border region. It is likely that the harmonization of TN visa requirements would have a much greater impact than the removal of the quota in 2004.

Notes

1. "Temporary entry" is defined as entry without intent to establish a permanent residence.

2. General, medical, scientists, and post-secondary teachers are the four categories of professional. The general category includes professions such as accountant, architect, economist, engineer, and lawyer and technical professions such as computer systems analyst, graphic designer, and land surveyor.◆

In fiscal year 1999, the United States admitted 68,354 non-immigrant workers under the TN visa: 67,076 of these were from Canada and 1,278 were from Mexico.

Temporary Entry Visas Granted to Skilled Workers, 1999 and 2000

1999								
Source	**H1A**	**H1B**	**H3**	**J1**	**L1**	**O1**	**P1**	**TN**
Canada	26	10,235	95	5,470	13,603	885	2,508	67,076
Mexico	75	12,257	574	5,538	11,387	398	8,373	1,278
2000								
Source	**H1A**	**H1B**	**H3**	**J1**	**L1**	**O1**	**P1**	**TN**
Canada	17	12,929	86	6,322	19,221	1,195	2,533	89,220
Mexico	130	13,507	307	6,295	14,516	542	9,977	2,059

Source: Immigration and Naturalization Service. H1A: registered nurses; H1B: workers with specialty occupations; H3: industrial trainees; J1: exchange visitors; L1: intra-company transferees; O1: workers with extraordinary ability or achievement; P1 internationally recognized athletes or entertainers; TN: NAFTA workers.

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Three Examples of Texas Internet Business Method Patents

Patent # 6,006,204
Issued: December 21, 1999
Inventor: Jerry Malcolm, Austin, Texas
Owner: IBM
Correlating transaction records via user-specified identifier creating uncleared transaction. This invention provides a method for a bank or credit union customer to reconcile his/her bank statement more easily over the Internet.

Patent # 5,737,619
Issued: April 7, 1998
Inventor: David Judson, Dallas, Texas
World wide web browsing with content delivery over an idle connection and interstitial content display. The invention provides a method for almost instantly displaying advertising or other information while a computer user is waiting for a requested Web page to appear.

Patent # 5,924,072
Inventor: Charnell Havens, McKinney, Texas
Owner: Electronic Data Systems Corp.
Knowledge management system and method. One of several EDS patents on managing company knowledge, this system allows employees to gather particular kinds of information from the Internet. The system puts a value on the information and provides methods for organizing, tracking, and updating information.

Announcement

The Bureau of Business Research is proud to announce the publication of **Texas: An Empire Wide and Glorious** (Cherbo Publishers). Dr. Bruce Kellison, **TBR** editor and BBR Associate Director, surveys the economic history of the most important industries in Texas and highlights the economic development of each of the state's regions. The coffee table book, featuring vibrant photographs and a foreword from former President George H.W. Bush, is useful as a tool for regional development boards and chambers of commerce and includes many Texas-based company profiles. It is available from Cherbo directly by calling Joan Baker at (800) 854-9880, Ext. 27, or by e-mailing her at jbaker@cherbopub.com.◆