Intellectual Property Rights and the Prospects for U.S.-Japan Cooperation in Asia

Technological progress and increased globalization have raised the importance of intellectual property rights (IPR) issues. As countries at the technological frontier, the United States and Japan have risen to the forefront of building a framework for IPR systems and international negotiations. To what degree and in what way have the U.S. and Japanese IPR systems converged? What are the economic, business and political implications? How do business method patents fit into this global strategy? Do we need to rethink whether a global approach to IPR works in developing countries? How can the U.S. and Japan support the implementation of IPR commitments that China has made?

On February 15, 2002, these and related issues were discussed at a major public policy conference which was hosted by the Center on Japanese Economy and Business and the Center for Japanese Legal Studies of Columbia University. Presentations were made by a select group of distinguished business professionals, lawyers and academics. Mr. Robert Stoll, Administrator, Office of Legislative and International Affairs, United States Department of Commerce Patent and Trade Office, was the luncheon speaker.

Excerpts of the speakers' presentations and discussion between the panelists and audience are presented in the following pages.

The conference was co-sponsored by the Jerome A. Chazen Institute and the Center for International Business and Education of Columbia University.
Intellectual property rights have been an important issue for much of the last 100 years. One of the fascinating features of discussions about intellectual property is that there is no clear consensus on what the right level of protection should be. Rules regarding intellectual property protection produced a lot of tension between the U.S. and Japan. Very frequently the U.S. argued that one of the reasons why Japan grew so rapidly was because they had such poor intellectual property rights and were able to copy many U.S. technologies. Indeed, we have seen a series of bilateral negotiations that occurred vis-à-vis Japan trying to improve intellectual property rights protection.

It was often very hard for Japanese negotiators to deal with the United States because the U.S. standard of patent protection was not the world standard, the U.S. had many idiosyncratic rules in terms of its own intellectual property rights law. However, over the last few years there has been striking convergence of the two systems in a number of dimensions. The tremendous movement on this issue has reduced the level of disagreement substantially. We now see both countries trying to grapple with a new set of issues in intellectual property rights, and these involve business model patents and a host of new technologies. In fact, we are wrestling with the basic idea of how we should define intellectual property and what can be patented. To a great extent, this reflects the evolving nature of intellectual property rights. Over time we have had to change our definitions of intellectual property rights, and our understanding of what should be protected has deepened considerably.

Two conflicting concerns underlie the basic economics of intellectual property protection. On the one hand, excessive restrictions may generate large monopoly profits for innovators at the expense of potential future entrants and innovators. On the other hand, excessively lax restrictions may reduce innovation through excessive competition. These two opposing forces mean that it may not, in practice, be feasible to adopt an ideal set of laws; instead we must settle for the second best in this arena.

As we move forward and think about this law and the globalization of this law, both the U.S. and Japan are now dealing with how this law needs to be extended to develop countries. One of the things that trade economists, such as myself, recognize is that intellectual property rights issues are very different from trade issues. Usually one can make an argument that the movement towards free trade enhances welfare in all countries. That is not necessarily true for intellectual property rights. Clearly there are going to be some payments that will be made by consumers of technology in developing countries to countries at the technological frontier. If these transfers exceed the gains that developing countries obtain from patenting their domestic technologies, it is very possible that intellectual property rights protection may injure developing countries. This means that unlike trade liberalization, global protection of IPR may make the poor countries poorer. This uncomfortable fact is at the heart of much of the resistance to IPR protection in the developing world.

In conclusion, I am happy to say that the timing of this conference could not be better. Just last month Prime Minister Koizumi formed a strategy council to promote the development of IPR in Japan. This is following a broader liberal democratic party agenda to improve protection in Japan. One of the major objectives of this panel is to maintain Japanese industrial competitiveness in the face of China’s rise. In fact, Japan has been making a number of uncharacteristically sharp statements vis-a-vis China precisely about intellectual property rights.

In light of the political and economic salience of IPR protection, it is clear that this is going to be an important area for discussion in the years to come.
There are no longer any major conflicts between the U.S. and Japan with respect to their patent relationship. This is primarily due to the so-called “pro-patent policy”, which dominates the development of both U.S. and Japanese patent laws.

At one time, the U.S. was suspicious about the benefits of the patent system under the strong antitrust policy. However, the U.S. reiterated that patents create new businesses and employment and bring money from foreign countries, particularly from Asian countries, like China, through the payment of royalties in the United States and Japan. Japan was also reluctant to protect patents because it did not want to provide strong patent protection. This was primarily because Japanese manufacturers were afraid that it would prevent them from engaging in further development based on technologies created by European and U.S. industries. However, looking at the success of U.S. industries, Japan quickly decided to follow the example of the United States.

The Japanese patent system was also a target of criticism from the Americans and Europeans for several reasons. The most popular criticisms were the Japanese Patent Office’s (JPO) delay in examining patent applications, and weak patent protection. The major source for these criticisms derives from the policy that the Japanese patent system traditionally followed. Namely, the policy gave more weight to uncertainty rather than incentive for inventors and, therefore, required the JPO to thoroughly examine applications before granting a patent. The same policy required Japanese courts to interpret claims narrowly to secure room for further development and improvement by their own industry.

In the mid-1990s, Japan discarded the old policy and adopted a patent owner-friendly policy. Ever since the Japanese economy plunged into its current deep recession, the Japanese government has been looking for measures to revive its economy. They are viewing the United States registration in the 1980s and the early 1990s. Japan’s Ministry of Economy, Trade and Industry (METI), and its agency, the JPO, were convinced that the pro-patent policy and other registrations in the U.S. were promoting technology transfer and that was the primary reason for the United State’s recovery from their own recession. To follow the United State’s example, the Japanese Government organized a Committee on Intellectual Property Rights in the 21st Century (1997) to strengthen intellectual property rights and promote the creation of pioneering technologies instead of improvement.

Since then, METI and the JPO have campaigned for the adoption of a pro-patent policy. The emphasis on the necessity of creating new technologies and new businesses shift the traditional burdens between the two competing interests. Under the new policy, Japanese patent law guarantees large rewards to inventors who make pioneering inventions. The scope of pioneering patents cover minor improvements or variations, even if the claims of such pioneering patents does not expressly cover the improvements. This is known within the patent community as the Doctrine of Equivalence.
Under the slogan of quick and strong patent protection, the JPO introduced several major legislative changes including a shorter period required for examination, a shorter period for requesting examination, post-grant opposition, improvement of invalidity/correction trials, and facilitating patentees ability to prove infringement and recover damages. Many of these changes are modeled after a variety of U.S. case law doctrines or U.S. registrations.

Over the last decade, the JPO has been waiting to expand the scope of patent original subject matter and the published examination guidelines to borrow case law development in this country. Unlike Europe, the JPO did not face any serious objections to expanding protection for biotechnological inventions and computer software. In fact, the JPO is the most advanced patent office in the world with respect to the patentability of computer software and business methods.

Currently, the JPO's proposal to revise the patent law is pending. The revisions will change the definition of patentable subject matter to clearly cover software and will express a broad interpretation of claims broadly and generously applying the Doctrine of Equivalence.

The U.S. also made a significant effort to move its patent law into line with Japan and the rest of the world. An enactment of revisions necessary to implement WTO/TRIPS removed several major discrepancies in the United States patent system compared with the patent system in the rest of the world. Interestingly, while the JPO quickly aligned its patent law with U.S. patent law, some of the most recent case law developments appear to reflect a new policy which is very similar to Japan's old policy. Although the Supreme Court has endorsed federal circuit decisions based on the pro-patent policy in these cases, recent federal circuit case law gives more weight to legal certainty and the compensatory interest for passing further developments rather than pioneering inventions.

What will happen next to the United States and Japanese patent system? There will be more convergence between the two systems. The U.S. and the Japanese Government place identical emphasis on the importance of IP policy development. Coincidentally, both the U.S. President and Japanese Prime Minister announced that they would appoint intellectual property advisors, who will report directly to them.

Additionally, the world intellectual property organization is currently conducting negotiations on substantive patent law harmonization. An ever-increasing number of applications overwhelm both the JPO and the USPTO. The JPO and the USPTO face challenges in their effort to retain good patent examiners for competing with the private sector. Therefore, it is necessary for both the JPO and the USPTO to harmonize the conditions for patentability so that they can use the results of each examination and eliminate redundancy. Moreover, the JPO and the USPTO should work more closely to negotiate with Europeans for patent harmonization negotiation because Europeans are very stubborn with respect to any changes to their so-called best and harmonized system, namely the European Patent Commission.

In conclusion, the United States and the Japanese patent systems have converged extensively over the last decade. The USPTO and the JPO have cooperated more closely so that they can examine applications and issue patents in a timely fashion. The U.S. and Japanese courts also tried to learn from each other because judicial conferences and seminars incur exchange of ideas between U.S. and Japanese judges. Given that more and more METI and JPO officers as well as Japanese judges will be educated in U.S. education institutions, they will develop policy in the future that is more U.S. oriented. The U.S. and the Japanese share the same basic footing in the fight against competitors from Asia.
Although the U.S. Constitution talks about establishing a patent system for the purpose of advancing the useful arts, we all really know that the purpose of it is to enable entrepreneurs and creative artists to make money. In fact, when the U.S. was founded, the secretiveness of the British Empire made everybody very unhappy. For that reason, we have this patent system. The important thing is there are not too many American companies on the list. In 2000 NEC was number two, Canon was number three, Samsung was number four, Sony was number six, Toshiba number eight, and Fujitsu number ten. This is an area in which non-U.S. companies have found fertile ground in the sense that they are filing for U.S. patents and they are exploiting U.S. law, such as the ability to block the importation of infringing products through the International Trade Commission. This has been going on for years. This chart goes back ten years and the predominance of Japanese companies continued throughout that decade.

One comment about patenting in Japan. There has historically been a difference in the content of a typical Japanese patent. Until recently, as other speakers here discuss in more detail, a Japanese patent was basically limited to one relatively narrow independent claim. Nevertheless, Japanese companies have felt that patents were very important. In typical large Japanese enterprises engineers and scientists may even have a quota, for example two patents a year. A company like Hitachi or Toshiba, which has thousands of engineers, will get thousands of Japanese patents a year. Needless to say, many of these patents are junk. The fact remains they get lots of patents. They train their young engineers on patenting. What they have failed to do is to train their executives on doing good things with those patents, and that is changing.

Let me just walk you through some history. When we were young, Japan was known for being the copycat country. Just from my personal view when I was in graduate school, Taiwan was the copycat country. We all sent away for cheap copies of expensive textbooks in Taiwan until the nationalist government decided that that was bad PR.

In 1962, there was the famous incident in which in order for IBM Japan to continue as a wholly owned subsidiary, IBM and MITI negotiated a settlement in which Japanese computer makers were licensed to all IBM patents, and IBM Japan continued to be a wholly owned subsidiary. It was clear even then that the patent portfolio of IBM was a very valuable asset, as it had been when T. J.
Watson Sr. ran IBM in the 1920s and 1930s, and the lesson should have been learned at that point in Japan. The Japanese companies did indeed pay large royalties to IBM and they have continued to pay IBM large amounts of money, although the size of the payments has been declining. You are probably all familiar with the famous integrated circuit patent which Texas Instruments got in the United States while the Japanese patent did not issue for almost 20 years. This is the submarine patent to end all submarine patents and it was done by the patent office, not by the inventor. One might well argue that it was a serious mistake for the Japanese Patent Office not to grant the patent immediately because by the time the patent was granted there was an enormous amount of revenue at risk. Texas Instruments, needless to say, has since made lots of money in Japan from its integrated circuit patent portfolio.

We then move on to the so-called “spy incident”. There were actually several of them between IBM and different Japanese companies. The most notorious was the case where certain employees of Hitachi and Mitsubishi were caught red-handed stealing IBM’s secrets. It is a comment partly on the loyalty of Japanese staff, partly on the importance they felt it was to keep up, and partly on the fact that there was an evident lack of respect for trade secrets and intellectual property. It is only recently that theft of trade secrets has been criminalized in Japan. This spy incident occurred not even 20 years ago.

About the same time IBM successfully sued Fujitsu and Hitachi for infringing copyrights on mainframe software. That was settled with payments of large amounts of money to IBM along with strong sanctions to prevent any repetition. However, during the bubble, things really changed. Japanese companies like Sony and Toshiba bought into American media companies. Not only did they become even more aware of the importance of intellectual property but they became owners rather than stealers. This was an important step in the changing attitudes of large Japanese companies towards the value and importance of intellectual property. They in turn influenced government attitudes to change.

In the last ten years we have seen a large number of cases in which Japanese companies are finally asserting their patents against infringers. This has primarily occurred in the United States, Korea and Taiwan but not so much in Japan. However, there are also important incidents in Japan in which Japanese companies, having recognized that they spent all that money to get those patents, are now going to get some of it back. We see chief executive officers of companies like Hitachi and NEC making very public statements that they are going to increase their licensing revenues by large amounts. That is partly because they have learned from American companies that this is good business. And, of course, it is because they need the money.

In the late 1990s, IBM and Hitachi had become the best of friends. They almost formed their own keiretsu in the computer business. This is practically unheard of. In 1982 Hitachi was stealing from IBM. Now they are close partners. On a larger scale we see there is harmonization of the Japanese and U.S. patent systems. In fact many people will argue that the Japanese patent system is in better harmony with the rest of the world than the American patent system is.

Does the example of Japan apply to China? We have seen that Japan has been changing over the years. Even the U.S. has been changing. Right now, however, “Chinese intellectual property rights” is a classic oxymoron in the intellectual property community. IP rights are rarely protected, in spite of laws that are closely modeled on those in the West and in Japan. The laws are good. The challenge is whether the laws will be consistently enforced. We have seen the evolution in Japan of IP attitudes and we are seeing some minor examples in China, some more in Taiwan, but the future outcome there is still very uncertain.

In Japan we have heard official concerns about industrial espionage. This is what I was talking about—the institution of laws and regulations to criminalize the theft of trade secrets. Similarly, METI has expressed its concern about product piracy by neighboring Asian countries. Now that there is genuine interest among major Japanese companies in protecting their own intellectual assets, the government is helping them out. What they are talking about with product piracy is piracy in Singapore and Hong Kong and Taiwan and China. They’re not really talking much about piracy in Japan.

So-called “sleeping patents” is...
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Another favorite topic for the Japanese Patent Office is a sleeping patent. A sleeping patent is a patent that nobody uses. In fact, this applies to most patents in most countries. My personal opinion about a sleeping patent is “do not wake it up”. However, the Japanese Patent Office is concerned about the number of sleeping patents. They came up with a number of 500,000, which to me is fictitious, but they are working on it. The patent office is taking a leadership role in trying to get Japanese business people to be aware of the value of their assets. Even Taiwan, long adept at copying, has begun to take patents seriously, although they still lag far behind Japan.

In China the government has complained that Chinese enterprises have very little awareness of patents. That may be on purpose. We do not know. But the fact remains that there is very little patenting activity by Chinese companies. As China was preparing to join the World Trade Organization, there were the usual very important pronouncements that piracy had to stop and the government would do something about it. Again, it remains to be seen whether that will happen.

How did Japan develop its attitude about intellectual property? Japan is a manufacturing country. Many, if not most, senior executives came from the factory. This is an economy, which has a very, very high view of the ability to make stuff, which of course is somewhat challenged now with the strong yen and hollowing of the Japanese economy itself. In Japan the fundamental intellectual property, I believe, is ‘how you make something’, not what you make. And you do not always patent that even in the United States. ‘Ways of doing’ are hard to enforce as patents. Therefore, in Japan, patents have perhaps not surprisingly been less important.

Since World War II there has been a very strong tendency among MITI/METI and the government to discourage domestic patent disputes and to encourage cross-licensing among Japanese companies. As a result, most Japanese companies are licensed to each other. The view is that “we license each other and then we take on the rest of the world”. In the matter of patents, at least, there was some validity to the “Japan, Inc.” concept. It has been changing, as I have said, but the fact remains it is still important.

We have seen a tremendous amount of change between Japan and the U.S. Japan’s balance of intellectual property trade is still highly negative, particularly with the U.S. Of course in other developing countries the balance of intellectual property trade is highly positive because they do not pay anything for it. It is important to understand whether the Japanese model, the transition from a “Wild West intellectual property environment to one of harmonization of its intellectual property rights system with the rest of the world, is typical or a unique characteristic of Japan and its cultural tradition.

In designing patents it would be very helpful for us to know the extent to which and the way in which inventors respond to increases in the strength of patent rights. We know very little about that because substantive patent changes in industrialized countries are fairly rare events. What we have in the case of Japan is an instance in which a highly industrialized country at the technological frontier has been strengthening its patent rights, so we can actually follow the activities of R&D intensive companies before, during, and after these changes and see what the effects are.

Professor Takenaka’s presentation stressed the changes that have been made in the Japanese patent system in the 1990s, but I would argue that the convergence between the U.S. and Japanese systems actually started in the late 1980s. Prior to 1988, there was a significant difference between the two systems, and this has to do with the scope of intellectual property protection conferred by a single patent grant. The U.S. system allowed for multiple independently valid claims in a single patent. What is a claim? A claim is a statement by the inventor describing the contents of her invention. The U.S. and European patent systems allow multiple claims in a single patent grant. In Japan, inventors were constrained to have only one claim per patent application.

Furthermore, the scope of indi-
Individual claims was much more narrowly defined under Japanese legal practice for the purposes of determining patent infringement than was the case in the United States. This actually led some foreign critics of the pre-1988 system to dub it the *sashimi* patent system because intellectual property was so thinly and narrowly defined under Japanese law. There was a very limited multi-claim system that was introduced in Japan in 1976, but it only applied to a small subset of Japanese inventions.

In 1988, a series of patent law reforms were put into place that essentially applied U.S. and European style multi-claim patents to the full range of potential inventions. This reform also effectively lengthened patent protection for certain kinds of pharmaceutical products.

Interestingly, this reform was not primarily driven by lobbying by domestic Japanese firms. An important part of the political impetus for this reform came from Japanese firm’s U.S. rivals, who wanted an intellectual property rights regime in Japan that was similar to the one they had in the United States.

In conducting research on the impact of this patent reform on Japanese inventions, Mariko Sakakibara and I interviewed Japanese corporate R&D managers, Japanese patent lawyers, and Japanese patent experts. Our interviewees suggested that Japanese firms perceived these reforms to have two benefits. First, it actually reduced the costs of intellectual property protection. You had to file a lot of patents under the single claim system to protect your intellectual property. Multi-claim patents could, at least in theory, give you the same degree of protection at lower cost.

Secondly, the reform had the practical effect of broadening the scope of intellectual property rights protection beyond that which could be achieved under the single claim system. The small overlapping circles in Figure 1 denote claims. The large clear circles around those claims denote what was, in effect, the novelty requirement for obtaining a new patent grant in Japan. The novelty requirement in Japan was not particularly high by international standards, but the scope of claims for determining patent infringement was defined so narrowly that this had the effect of creating a kind of “commons” of intellectual product space around the claims. You could not get a new patent grant inside the commons because it would be judged to be insufficiently differentiated from existing patents to merit a new grant by the Japanese Patent Office.

The multi-claim pattern system allowed Japanese patent applicants to fill in the commons with multiple overlapping claims. This effectively broadened the scope of intellectual property rights protection in patent grants and, in principle, made it much easier to prove infringement. These are the impressions that we get from our interviewees, and they are consistent with accounts of the changes in the professional literature for Japanese patent practitioners.

![Figure 1](Image)

**Figure 1**

![Figure 2](Image)

**Figure 2**

Substantive patent changes in industrialized countries are fairly rare events.
What are the effects that we see in the data? Figure 2 counts the number of patent applications in Japan before and after the 1988 reforms. What we see is that the number of new patent applications leveled off pretty dramatically. Partly that was driven by the fact that, almost immediately, Japanese corporate inventors started reformulating their patent applications to take advantage of the features of the new law. The number of claims per application jumped up dramatically. There were differences in the degree to which changes were made across different classes of inventions. But you see a fairly substantial change that takes place across all classes of inventions.

Another point that our interviewees suggested is that with the reforms in place, it was actually easier to demonstrate the novelty of an invention. It was easier to convince the JPO to give you a grant if you had multiple claims with which to make the case that your invention really did represent a significant improvement over the existing state of the art. That suggests that a few years after reform, around 1992 or 1993, when we could expect patent applications filed under the new system to begin to emerge from the government evaluation process, we might see an increase in the number of grants. And in fact, between 1993 and 1996, the number of grants more than doubled while the number of applications grew only modestly. This suggests that at least one feature of the new system stressed by our interviewees is reflected in the data.

There was also an increase in intellectual property litigation in Japan in this period. Patent litigation is just a subset of this, and the numbers of cases filed are small relative to what we see in the U.S., but what is striking is the trend break. There is clearly an increase in litigation suggesting, as our interviewees indicated, it was easier to prove infringement under the reformed system.

Did providing Japanese inventors with stronger intellectual property rights induce them to invest a higher degree of resources in invention? No. Figure 3 tracks average changes in R&D spending for a sample of 307 Japanese manufacturing firms before and after the reforms, controlling for firm sales, industry effects, and other variables. There is a sharp increase in R&D spending right up to 1987, the year in which the law was passed. The year in which it went into effect was 1988. One sees no increase—no trend break in the time path of R&D spending that could be plausibly attributed to patent reform. If anything, there is a decrease in the rate of growth, and then a resumption of growth in the bubble years, 1989, 1990, and 1991. A slight decline follows as Japan’s great recession takes hold.

What about innovative output? One could look at the number of patent applications in Japan before and after reform but, in some sense, the units have changed. We have gone from single claim patents to multi-claim patents. What claims used to mean under the old system is different from what claims mean under the new system. Drawing conclusions about how patent reform impacted patenting in Japan is difficult. However, we are aided by the fact that Japanese firms were very aggressive about patenting their inventions in the United States, as well as Japan, before and after the reform in Japan. There was no similar reform in the United States. U.S. patents were multi-claim before 1988 and after 1988.

As Professor Takenaka and Bob Myers pointed out, the Japanese continued to strengthen their patent system in the 1990s and many of these changes were discussed in detail. However, we do not see strong evidence in the data that this additional strengthening of the patent regime has induced additional innovative effort. If we look at private section R&D spending in the U.S. and Japan from 1985 to 1999, we see that it has grown dramatically in the United States in the late 1990s but the increase has been very modest in Japan. It is true that Japanese companies spend a lot on R&D as a fraction of their sales, but their sales have barely grown. The aggregate level of spending has not kept pace with the developments in the U.S.

Furthermore, Japanese companies have lagged far behind U.S. and European inventors in terms of worldwide patent applications.
By 1989 or 1990, Japanese firms had almost caught up to their U.S. rivals in terms of total numbers of patent grants per year. In every year since then, the gap has widened. By the end of 1999, the difference in the number of patents being granted to Japanese inventors in these classes relative to their U.S. rivals was much larger than it was in 1980.

As a result, we are left with a somewhat puzzling conclusion. On the one hand, there is a substantial strengthening of the intellectual property rights regime in the patent sphere that no one really contests. The debate is about how much convergence there has been between the U.S. and Japan and not whether there has been any convergence.

On the other hand, the effects that we would expect to see from this strengthening of innovative incentives are essentially absent from the data. We do not know what Japan would have done in the absence of this strengthening, but clearly it's hard to find any kind of positive trend break in the data that can be attributed to the strengthening of IPR. What is going on?

One thing that must be kept in mind, of course, is the impact of Japan's “great recession” on the ability of Japanese firms to invest in R&D and to receive returns from their investment. The recession depressed levels of spending in the 1990s, and it may obscure any response of firms to stronger R&D incentives as a consequence of patent reforms in the mid-1990s. However, the early patent reforms of the late 1980s occurred during a boom, and there was no discernible impact on R&D spending then either.

In my conversations with Japanese R&D managers, they suggested that as their firms reached the technological frontier they found it increasingly difficult to make headway. Coming up with fundamental new innovations is quite different than adapting technology or taking technology that is already “somewhat developed” and implementing it skillfully in a product. Japanese firms seem to have found it much harder to succeed in this more basic kind of research.

Finally, a trend that we see in the United States is an increasing tendency for industrial patents to cite academic research in their patents. This suggests that there is a growing connection between academic science and industrial R&D at the technology frontier. Of course, it is still the case that Japanese universities lag behind the top universities in the United States and Europe in many basic scientific disciplines. That might partially explain why we see converging IPR and diverging innovative performance. But I think the implications of this may go beyond Japan.

The current international debate over strengthening intellectual property rights has presumed that if you strengthen intellectual property rights, it will be a benefit to the countries because it will induce a higher level of innovative effort. Although we have witnessed a strengthening of intellectual property rights protection in Japan, particularly in terms of its patent system, we see little evidence of additional innovation induced by this change. This is an interesting and potentially important result. Recent policy changes, such as the TRIPS agreement, may be based on an exaggerated view of the innovation-inducing effects of stronger patent systems. More evidence on this point is needed before we can come to any definitive conclusions. However, if stronger patents do not induce more innovation, then some of our pro-patent policies may need to be re-examined.

Rapp: It has been posed that one of the reasons for the surge in Japanese patenting during the 1980s was the fact that it also corresponded with the surge in Japanese overseas investment. What role is foreign direct investment (FDI) playing with respect to trends in intellectual property rights?

Myers: I do not think it is significant. For many years Japanese companies have gotten patents because important companies get patents. However, they rarely exercise them. The most important use they put them to in my experience has been to counter the claims of American companies, which were requesting large royalty payments. The Japanese companies built up their portfolios, and each time they negotiated a new agreement they said now we have another 5,000 patents and we will pay you less. Of course, that was not a trivial use of the portfolio. I think that was far more important than expanding overseas because the main intellectual property development of Japanese companies was, and I think still is, in Japan. Their foreign laboratories are really small satellites in comparison.

Branstetter: The increase in Japanese patenting in the U.S. preceded the surge of FDI. The surge of FDI basically came in the latter half of the 1980s. There is clear evidence of an upsurge of Japanese patenting in the United States well before that. Despite the well publicized attempts by Japanese firms to set up research subsidiaries in the U.S. and elsewhere, these research subsidiaries constitute a very small part of the total corporate portfolio of innovative activity, in the order of 5 percent of total R&D spending and even a smaller share of total patents.
The State Street Case was a watershed change in the law. When we talk in the United States about the patentability of software and business method patents, we often talk about pre-State Street and post-State Street. In the U.S., it used to be that when you filed a patent application, you had to file with the patent office a little one by one cubic foot box with a working model of your invention. This was so the patent office could examine and actually operate your invention along with examining your patent application.

The interesting thing about that is you can see that our patent system in the United States clearly had a very mechanical or electromechanical based industrial background. That was fine up through the 1940s and 1950s. However, in the 1960s-1980s, as American industry began to develop from a technical industrial-based economy to an information age economy, the patent office worked and struggled extensively to apply the patent law that they had applied to mechanical inventions to the inventions and innovations they were seeing in the information age. Particularly, software, computer-related inventions, and to some extent business processes. It was important because the e-commerce business was driving much of the work in the patent office and, at least for a while, it appeared that the e-commerce business was going to drive much of the U.S. economy.

Pre-State Street (through the late 1990s), the court struggled with the patentability of software. Business processes rode along for the ride. There were many court decisions at that time. Everybody seemed to agree that copyright law was not sufficient to protect the innovation in the information age technology that was being developed by U.S. corporations that people were trying to patent. However, I thought the courts were inconsistent and unclear about the patentability of software and business methods. Some decisions came down positively for software in terms of its patentable subject matter nature. Some came down negatively for software. Many scholars contended that they could reconcile those cases. I do not claim to be a scholar but I was neither able to completely reconcile those cases, nor completely predict what the next round of cases would hold.

There were very interesting dynamics going on while the courts, particularly the Court of Appeals for the Federal Circuit and the Supreme Court, were struggling with the issue of the patentability of software and business methods. Companies were filing for patents on business methods and software. Many people involved with a major U.S. corporation will say they were filing software inventions as early as the 1960s or 1970s and business method inventions perhaps even in the same time frame. A second dynamic was that the U.S. patent office was issuing many of these patent applications. A third dynamic was that many companies that were not flush with money and did not have regular patent processes and procedures interpreted the law to mean that this subject matter, software and business methods, were not patentable. They did not invest in intellectual property.

In 1999 the State Street case issued. Depending on your interpretation of the law that led up to this decision, one would say that...
corporations also began to dig out
nies, but many of the established
legislature to fix it. Most companies
patents that were asserted and liti-
applications very aggressively.

That takes you through the pre-
State Street and State Street decision timeframe. What happened next?
Many things began to happen at one
time. First, there were high profile patents that were asserted and litig-
gated. These include, for example, the price line.com versus Microsoft
lawsuit, the Amazon versus Barnes
and Noble lawsuit on the one click
patent, and the Net Zero, Double
Click, and Pitney Bowes patent
assertions. I think many of the early
litigations were filed by some of the
more visible e-commerce compa-
nies, but many of the established
corporations also began to dig out
their software and business method
patents and assert them in license
negotiations and in litigations in a
much more aggressive way.

Everybody who had been get-
ting patents all along started to
work with those patents. But the
large group of people who had not
gotten them said, “no fair, you’ve
changed the law.” Those people
started to complain and file patent
applications very aggressively.

That takes us through the pre
and post State Street time periods.
What was the large corporate reac-
tion in the United States based on
my perceptions? Those caught
without patents in this area claimed
it was unfair that it was a change in
the law. In essence, they asked the
legislature to fix it. Most companies
that were not then getting patents
in this area are getting them very
aggressively now. Companies that
had marginal patent programs in
the software and business method
areas are pursuing these patents
very aggressively now.

Those who had patent portfo-
illos in the software and business
method areas felt vindicated by the
decision. They viewed it as a sim-
pel clarification and ratification of
their prior actions. They were obvi-
ously quite happy.

There was another group of
small corporations—the e-com-
merce start-ups—affected by the
State Street decision. All of a sud-
den, they recognized that in
addition to their business plans,
management teams, and whatever
small resources they could marshal
together as they launched a busi-
ness, that they had a very valuable
asset that they could own.

Fundamentally, they could have
exclusive rights to their business
model. This was an asset that has
obvious and very significant value
in a small corporation or a start-up
environment. Investors began ask-
ing start-ups about their patent
position and start-ups began getting
patents very aggressively. It is a
very simple dynamic. You can have
a business without an exclusive
position of any type or you can
have a business that has some
patents pending or patents issued
and have an exclusive position of
some type. Obviously, the latter has
much more value in the market-
place and everybody recognizes it
quickly.

There was a public reaction.
Those favoring intellectual property
protections view the State Street
decision as a simple clarification
consistent with prior decisions.
Those who favored open standards
or had concerns about monopolis-
tic extensions of patent law
considered the decision as new and
overreaching and again looked for
legislative solutions to what they
considered to be the problem.

The patent office had its own
unique and separate response.
They were flooded with business
method applications. There were a
lot of public questions about the
quality of their processes and the
result and I believe that they han-
dled themselves well. They
indicated that they had been issu-
ing business method patents for
some time. They certainly indicated
that they were overwhelmed by the
quantity of filings and perhaps
some of the topical subject matter
that they had not experienced
before. And they have programs
today to increase education, to
increase their staffing, and to
implement reasonable quality con-
trols and guidelines for
examination in the area of business
method patents.

Legislatively, there was a reac-
tion. There were some legislative
efforts that were undertaken to
address the perceived problem.
Specifically, some prior user rights
were granted a few years ago in
some of the new patent legislation
that went through. There is more
onerous legislation that is pending
today that deals with trying to dis-
tinguish business methods and
software as patentable subject mat-
ter having special treatment under
the law.

I think that these legislative
efforts also focused the spotlight
on some of the wider areas of intellec-
tual property law that do need
legislative attention, such as the re-
examination process. There are bills
pending and hearings going on in
congress about these issues today.

Let me talk about myths and
realities surrounding business
method patents. The one myth that
I hear most frequently is “wow, it
was so simple I could have thought
of that—that invention is simple
and elegant and obviously it can
not be patentable.” The reality is
that most great innovation is ele-
gant and simple with hindsight and
that is not the test of patentability.

When you look at an invention
and say that is just wonderful, I think it
is an inappropriate reaction to in
the next sentence say; “nobody
should be allowed to have a patent
on that.” Bad test.

A second myth is that business
method process inventions are spe-
cial and easily identified as a group
that requires special handling. It is
very difficult to define business
process inventions and to distin-
guish them from other types of
inventions that we might tradition-
ally consider hi-tech.
A third myth that I hear frequently is that business method patents are of lower inherent quality than other patents. For example, they are just not hi-tech. The reality is that all patents pass the same tests and all inventions pass the same test for patentability in the patent office. They have to be new, non-obvious, and adequately disclosed. To the extent that they are not, the patent office should not issue them as patents. Do bad patents occasionally issue in the business method process area? Do bad patents occasionally issue in the software area? Absolutely. But bad patents occasionally issue in every technological area. I would also urge you to remember that patents are judged by the claims that define the ownership rights of the inventor and not by the title or the background of the invention.

A fourth myth is that patents are not necessary in the business method area. As somebody who was there, I assure you they are. A lot of money is spent to develop an e-commerce type business or a business method invention into a commercially viable entity. Investors look for patents before they invest money.

A fifth myth is that the patent office cannot search and examine both technologies, especially those resulting in significant increases in filings, pose challenges for the patent office. I would posit that the patent office historically has and will overcome those challenges as they continue to examine business method and software applications.

The final myth is that business method patents are bad for the industry and economy. Historically, patents stimulate an industry and empirically we see that result happening today. In conclusion, it is expensive to innovate, test and launch a commercial product or service. With the clarification in the State Street law, you can now own the fundamental models underlying new businesses, entirely new models of commerce and software. It is fundamentally the first asset of value, the business method and the patent(s) protecting it, that can be owned by many start up companies. Companies need patents in these areas to garner investment capital and to encourage entrepreneurs to continue to launch businesses. Without patent protection, entrepreneurs and risk takers will not be compensated for the costs and risks that they incur in building businesses based on new business models. Investment will be likely to diminish in these areas. Ultimately the public will be the loser. People are getting patents in this area. What I advise my clients is if you do not, you may become a free R&D laboratory for your competitors. You may end up paying a lot of money in royalties.

A year ago the question of business method patents was being described in crisis language. Certainly in the immediate aftermath of the State Street decision, there was a lot of anxiety being expressed and many claims were made that somehow the future of business, and in particular e-commerce, was at stake. This crisis has an interesting international dimension. There are only three significant major jurisdictions in the world that allow business method patents at the moment; the U.S., Japan, and Australia. In many other parts of the world there is vehement opposition from patent offices and government officials. Europe, the U.K., Canada, and many other countries have adopted an official position of “over my dead body.”

What should we make of this controversy? Over the past few years we have seen a lot of press attention paid to some high profile lawsuits, such as Amazon versus Barnes and Noble. The editorial page discussion of these cases has been accompanied by reports of public opinion where words like “gold rush” and “land grab” were bandied around. Outside the editorial pages there has been a lot of discussion from high profile people about threats to the future development of e-commerce and the World Wide Web, where commentators seem to think, in general, that innovation is going to be brought to a halt by issuing these patents. All of this talk raises some very interesting issues. Is there a crisis? What are the consequences? Should Japan be joining with the U.S. in issuing these kinds of patents? What are the patents in question? There are the so-called Wall Street patents, which cover things like derivative securities, methods of valuing securities, and index linked bonds. There are also a variety of patents that cover the infrastructure of e-commerce; shopping carts, web transactions, and so forth. And there’s a variety of miscellaneous other “technologies” which have crept into the system. A little while ago, people were very interested in patents on foolproof methods of counting votes. If you’re operating an on-line casino, you may be interested in patents on games, gambling, and so forth. From the perspective of my industry, universities, I think it’s worth noting that there are increasing numbers of patents being issued on methods of pedagogy.

What is the size of the problem? It is quite difficult to be precise here, since there is a lot of reclassification and resorting going on inside the patent office. Furthermore, the boundary between what is a business method patent...
and what is a software invention is very blurry. But according to my estimates, about 6,000 business method patents have been issued in the United States, and there are probably several thousand more pending applications, and several thousand more patents which cover a business method but which have been filed in a different part of the classification system.

Figure 1 might help demonstrate what we see going on and why the word “crisis” started cropping up. The bottom line in the figure is granted applications in this particular class. The top line is my estimate of the likely backlog and what might appear in the future. As you can see, there are now thousands of business method patents being issued every year, and a very large backlog.

But is this a big number or not? Very large numbers of patents are filed every year, so it is important to express this as a proportion. By my calculation the business methods class has risen from a tenth of a percent of all U.S. utility patents in the early to mid 1980s to roughly 1 percent by the late 1990s. This is not trivial.

Figure 2 shows the major areas where significant numbers of patents are being filed. Who is getting these kinds of patents? Figure 3 lists some of the major assignees in the business methods class. Note the large number of Japanese firms. While the left-hand column represents mature firms, the right-hand column shows the new economy. The usual suspects from the World Wide Web are there. Top of the list are Priceline.com and Walker Digital (I have bracketed these two since the boundary between them is I think more legal than real). At the bottom of the column I have added counts of patents obtained by companies who are heavily invested in thinking about new business methods and processes. Surprisingly, there are not too many coming from the major accounting and consulting companies. Another interesting question is where these patents come from in a geographic sense. About 80 percent of the assignees on these patents are U.S. based, which I think reflects the geographic concentration of much of this new economy activity.

Much of the controversy generated by the issuance of business method patents revolves around the breadth of the claims that are allowed, and the extent to which they are limited by enabling disclosure. The crucial question is whether the legal process surrounding patenting can find a way of limiting the scope of claims in patents to these kinds “algorithmic” inventions. As a practical matter is it very difficult to determine at what point we draw the line between an algorithm with very general applicability (which we should be very careful about giving proprietary rights over), and an algorithm with much more limited “reach” and a narrower scope of applicability. This is a tough one! We have to trust patent offices and the courts to get this right, but right now this is an open question. We have yet to see conclusive evidence on this from the high profile lawsuits that have not yet reached the appeals court.
Turning to economic analysis, for economists, the patent system exists to address a market failure, specifically the disincentive for inventors created by imitation and the inability to exclude other from practicing your invention. Strong patents are supposed to address this problem and stimulate innovation. From this perspective, the important questions here are whether or not there is a serious market failure in business methods and, if so, where would we see it and what might be the consequences?

But before getting into that, as a footnote let me point out that much of the crisis mentality badly overestimates the effective strength of many of these patents. From a practical business perspective, a patent is only useful if it can be enforced. Having been issued a patent by the U.S. Patent Office is step zero. In order to enforce those rights you have to be able to identify infringement. This can be very difficult when you think about back office processes in a business. Then you must take your patent to court and accept the judge blue-penciling the claims. Then you must face determined opposition from the alleged infringer who is determined to prove that your patent is invalid. Furthermore, in the area of business methods, in the United States this is the one place where you have prior user rights. In my opinion, many of the issued business method patents with broad claims will turn out to be unenforceable.

How will strong IP rights affect market structure? We just do not know. There are two polar opposite models people like to think about here. One is borrowed from pharmaceuticals where patents are a fortress against imitation, and competition is R&D based and driven around coming up with blockbuster new products. The other model is one which is prevalent in industries such as semiconductors, where patents really are the infrastructure for cross licensing and pooling, and the real competition is in the marketplace through low costs marketing, branding, or pace of execution.

How should we interpret the flood? What generated all these patents? One explanation is “hot technology”, and indeed there has been a lot of innovation in e-commerce and thinking about new ways to do business. Another factor underlying the surge in patenting is simply opportunism: the courts opened up this opportunity and nimble people leapt to it. But I think we should temper this by recognizing that many of these applications are just business as usual. Patentees may be “forced” into filing for strategic reasons. You might not agree with the principle of issuing patents on business methods, or ever intend to enforce patents you obtain, but if you do not, somebody else will. For many companies, the first response to an allegation of patent infringement is to counter assert one of your own patents. In other words, there may be large numbers of patents being generated relative to the underlying inventions because of sophisticated use of the system.

With respect to market failure, I am actually very skeptical that there is a market failure to be addressed here. There are two obvious places to look for market failure: the pace of innovation, and the profitability of innovators. Has the pace of innovation in business methods been accelerated by allowing patents on business methods? I doubt it. In e-commerce, as in some other areas, I think the fundamental innovations predate the availability of patent protection. If you look at the development of the World Wide Web, modern finance, or what business schools call “value-added logistics”, all of these areas of technology have been highly innovative, and done so without the benefit of patent protection. We should note that much of this innovation has been driven by public sector and academic research.

Patents are also supposed to promote disclosure of information. One might argue that a lot of innovation in the area of algorithmic inventions has been going on in back offices hidden from view and society is now going to benefit because that now comes out in the form of patent disclosures. I am skeptical. I think that in most of these areas there has been plenty of disclosure already.

Lastly, what is the role of patents in making new ventures in these sectors profitable? Looking at the smoking ruins of the e-commerce landscape, I think it is clear that profits in these businesses are primarily realized through non-patent mechanisms. It is brands first
I have been looking for some time at whether one can find connections between the number of the scope of patents awarded to dot com type companies and indicators such as their market value or the time it took them to die. I have not managed to find one. This is not to say that business method patents do not have important economic functions, but it is difficult to see a first order effect.

A greater concern, I think, is the question of whether this activity has undermined the patent system? Critics have argued, I think convincingly in many situations, that the patent office has rushed out and issued many patents that appear to be invalid. Something has gone wrong with the process. We will, of course, have to wait to see what the courts will do about interpreting the scope of claims and the doctrine of equivalence in this area.

What has gone wrong in examination? First, there is a problem of establishing novelty. The patent office has a really difficult job to do, and limited resources, but the way it is managing examinations has not been particularly helpful. By and large, inexperienced or inappropriately experienced examiners facing a production quota and a lot of turnover in the office have had to deal with a large number of applications.

A more difficult problem in the examination process is establishing non-obviousness. I think any new area of technology this has to be done by trial and error, and maybe the USPTO has been making too many errors.

At the heart of this is what I call the ‘No Medline’ problem. Patent examination begins by establishing novelty through a search for prior art, and unlike biotech where every useful piece of knowledge in biotech is exhaustively indexed in an easily accessible format, we do not have that for business methods. On the other hand, I think the patent office could have done a lot better.

Examiners are busy and stressed. What do they do? Mostly they look at other patents, and you can see this by examining citations made by issued patents. In the case of business methods, I found that 2,980 out of 5,500 granted patents cite no non-patent prior whatsoever. I think this is appalling, and a concrete indication that many of these patents are very vulnerable to challenge.

In conclusion, I think this is going to turn out to be a lot of smoke and not much fire, but we have to be concerned about the long run implications of issuing a large number of these algorithmic inventions with unclearly defined scope.

To a great extent, inventing, innovating and introducing new ways of doing things to the economy proceeds very well without any patent protection or intellectual property rights protection at all.

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I would like to put the discussion of business method patents in a larger context before moving on to the particular issues associated with business method patents.

To a great extent, inventing, innovating and introducing new ways of doing things to the econ- omy proceeds very well without any patent protection or intellectual property rights protection at all. Over the last 30 years, there have been a number of detailed empirical studies that were trying to probe the importance of patent protection in stimulating invention and innovation in a wide variety of manufacturing industries. These are industries that are producing goods and services, which is the tradi- tional arena of patenting.

What is striking about those studies (some of which go back to the middle 1950s and have been done in the United States, the United Kingdom, Japan, and...
It is a mistake to think that you need patents invariably to innovate and/or induce innovation.

Europe) is that an extraordinary large number of industries report that patent protection is not important at all as part of the collection of incentives that motivate firms to do research and development. That includes industries like semiconductors up until recently, aircraft, aircraft engines, and computers.

There are various reasons why patents are not particularly important in these industries. In some of them, there is significant public funding or nonprofit motivation for doing the work. In a number of them, like semiconductors and computers, the orientation is geared toward trying to make money on the operation. However, you do that through the advantages of the head start, through being able to move down a learning curve, and through establishing production and marketing facilities. In this wide range of industries and activities, patents just are not a very important factor motivating innovation.

It is a mistake to think that you need patents invariably to innovate and/or induce innovation. There are some areas that you do. One interesting question is whether we really need that or does it do much regarding business methods? My conjecture is probably not.

A second observation is contrary to some of the statements that have come out of the American courts over the past ten years. Granting patents can be very costly economically. Granting patents on certain types of things can actually prejudice what was prior art. The patent office is not supposed to do that and the courts are supposed to catch that, but the patent office does it all the time.

Granting patents or having patents in an area can significantly raise the transaction costs of putting things together in a productive and fruitful way. This is very much the case in technologies or industries where the products are complex systems that involve a variety of different components and parts. Therefore, if patents are strongly enforced and litigated, require the company doing it to get an enormous string of patent licenses in order to move forward.

It is very interesting that in a number of industries where the products are these complex systems, that a de facto automatic cross licensing agreement exists where companies are permitted to put packages of things together under the treaty you don’t sue me and I don’t sue you. In those industries, however, the proposition that patents are always benign pushes the matter too far.

To introduce patents into areas where technical progress and advance has been relatively effective without patents can often undermine the pattern of open and free communication that had existed in a regime where advance was occurring cooperatively and without patenting.

About eight or nine years ago there was some conflict regarding patents that were imposed on what came to be called naked medical practice. This refers to physicians and others who had been working in medical schools and advancing varieties of surgery by openly communicating with each other. A number of patents appeared in that regime. An interesting case involved the American Medical Association (AMA) and its strong protests against patenting on the grounds that it would cut out open communication in the biomedical research community.

The benefits of having patents in an area can be strongly negative. They can deter technical progress and slow it down rather than advance it. This tends to be the case when what is made proprietary was largely already there and open, where many of the contributions would have been made without patenting and where patents control a relatively broad area so that it becomes very difficult for people who are trying to develop new things to maneuver around a demand line of patents that are out there.

How do I see recent business method patenting in that context? I think it is unfortunate that the prior art search, which the patent office is engaged in, has been largely a joke. That is because much of the prior art regarding much of business method has not been written down in patents and prior patents. It has not been written up at all. It is a basic tacit understanding that is shared among people who are working in the field. A patent examiner with limited time and limited in the traditions of actually going out in the field and asking people what is known and what is not known is going to miss large fractions of prior art and grant patents.

The standards of non-obviousness have to a considerable extent been a joke. You get this in extended commentary on a number of the patents that have been granted. One of my colleagues has pulled out a collection of recent software patents and probed the question: Is there anything new or novel here that I could not have done or would not have thought of almost immediately if I had been faced with that problem, and come out pretty strongly if the lion’s share of them did not meet reasonable standards of non-obviousness?

There is the issue of patent scope. Many patent claims have been written relatively narrowly. On the other hand, there is real concern about the way courts will treat that. Do not rest easy and do not be comfortable if your belief in the regime is that the courts will sort it out. That is an extraordinarily costly and painful way to settle problems. One of the advantages of not having patents in a system is that people working in that system do not have to pay an awful lot for lawyers. They do not have to operate under the threat and fear that somebody is going to sue them. They do not have to worry about going to court. The way the patent system is enforced is very costly.

Should we take a stand as to not have business method patents? I think there are some cases where as best you can you want to wall off certain areas from patents. That is not an easy thing to do and lines are very difficult to draw. My belief is the best way to operate in a...
number of areas is to get the patents, if they are granted, and make the system that is operating in that area operate in a reasonable way. I do not have problems with business method patents if there was adequate search for the prior art. Presently, I see the patent office struggling to move effectively in that direction, but still being a long way away from it.

To enforce strong standards of non-obviousness we need an opposition system—an external testimony to the effect that what has been put forth here as patentable subject material was certainly obvious to professionals in the field and here are six of us who will state that. At very limited scope, that is not simply a problem for the patent office but it is a problem for getting the courts to understand in the United States much better than they have understood over the last number of years. They are moving slowly in that direction. Granting patents of relatively large scope or enforcing patent rights of large scope can essentially kill innovation, not spur it.

Question and Answer:

Question: Clearly we have an apparent irreconcilable status at the moment between Europe, Canada, and the United States, Japan and Australia. What is likely to happen and what is likely to motivate that reconciliation at some point?

Brandt: Fundamentally, if you subtract the social issues associated with these matters, you have two potential circumstances for businesses. One is to have an unprotected position that is subject to misappropriation by anybody who could reverse engineer it and take that position. Or you have somebody who has a patent in a proprietary and exclusive position. I think that fundamentally businesses will eventually gravitate towards desiring a proprietary position in their industry. My expectation is internationally patent laws will eventually tend to encompass more subject matter and find more things patentable rather than less. Cockburn: I think this actually brings up a specific instance of a broader issue; the courts want to have one size fit all in the domain of subject matter. I think a reasonable argument is to say that not all things made by man need patent protection. Let me broaden that to the international arena. It is not obvious to me that the world necessarily needs a completely harmonized patent system. Some of it is social choice: It seems to me quite reasonable that different parts of the world can make different choices about this. I do not see a pressing demand to harmonize.

Nelson: The lion’s share of the applications was for business method patents and seems to be coming from Americans. To the extent that the business method patent regime holds up in the United States they will be free to use and enforce those patents as best they can in the United States, which for most of them is the lion’s share of their market anyhow. You certainly want some harmonization but you do not need to have it across the board, and on the grounds that some of these patents would be more lucrative if you could enforce them in Europe as well as the United States. In fact, the cost to the U.S. patent holder of not having patents hold up in Europe, with some exceptions, probably is not particularly great.

Question: First, how do you separate the criticisms of business method patents from criticisms for failures in the patent office that would not be strictly limited to business methods? Second, what are the trends in licensing of business method patents?

Nelson: I do not have any objections in principle about business method patents. I have objections in principle for patents on certain types of things, which I think should remain in the public domain. I am uncomfortable about a number of patents associated with the growing understanding of the human genome, for example.

But those concerns do not carry over at all with respect to business method patents.

My concerns are focused on how the patent office and the courts deal with business method patent applications. Dealing with this problem will not be easy. In particular, the issue of identifying what really is prior art and what is obvious, given what people have already done in this arena, will be quite difficult and take a long time to develop. It may require different practices and ways of scanning than have been conventional.

I am also concerned that as business method patenting becomes more widely accepted it will become costly because everybody will be patenting their business methods. These are the procedural and long run consequence issues, but I have nothing in principle against business method patents.

Cockburn: I second exactly what Professor Nelson said, but I also raise the point that there are transitory and permanent effects. There is a flood of applications. Many of them will probably not be enforceable, many will not get renewed by their assignees and many of them will go away.

The general problem is that the rules by which the intellectual property system works are not well set up to deal with new things, such as technology. The patent office comes under a lot of criticism. I think it is worth restating what a difficult job they have to do if they have limited resources, enormous pressure and a tough job to accomplish. That said, I think that there ought to be mechanisms for reform, such as removing the assumption of validity for brand new technologies, more extensive consultation of users or people likely to be impacted by patents being issued in a new area, a collective agreement about what the standards for obviousness might be, and what would be the appropriate prior art collections.

Brandt: Prior art is a very important issue. There are opportunists.
that own patent rights that tend to take advantage of them in industries where perhaps they did not contribute. There is another group of opportunists who think they can sneak something through the patent office and obtain a patent without the best prior art having been on the table and they obtain inappropriately broad patents. There are opportunists; it happens in every industry, and it is not specific to business methods or software. We all need to keep in mind that not only is it incumbent on the patent office to build its own skills and resources in these areas, but it is also incumbent on patent owners to do their own searching and to make sure that the best art is on the table for the patent office.

1 can guarantee you that with most of these high visibility patents (I know personally the Priceline Patent and the Amazon Patent) the owners worked to put the best art on the table. They would not have asserted these patents if they did not think that the best art was on the table—the best art not being a function of the number of references, but the quality of the references that were available at the patent office.

With respect to licensing trends in the business method arena, my observation is that licensing trends are under development and that they vary depending on the particular business process patent owner.

The seminal event with respect to the issues related to intellectual property is the growth of the Internet. Several intellectual property issues arise based on the Internet, including business method patent issues, copyright issues that relate to the ease of transmitting and copying, geographical indications matters, which are more important than ever, and domain names. These issues grow from the increased crossing of international borders, which is easier than ever before, and the territorial nature of intellectual property rights. Furthermore, international cooperation as to intellectual property rights is more valuable than ever.

With respect to patents, one area we are extremely involved in is trilateral cooperation. Since 1985, the United States Patent and Trademark Office, the EPO, and the JPO meet regularly. The heads of the office meet once a year and the technical staffs meet several times per year to discuss issues related to technical aspects of examination of applications. We talk about (1) patent administration, (2) patent documentation and classification, (3) automation programs and, most recently, (4) patent examination and practice.

The trilateral offices have done studies in the area of business method patents. The USPTO probably has the most expansive view with respect to the patenting of business method inventions. We do not have a technical aspect requirement as is required with the JPO.

Strictly speaking, the EPO, under Article 52 of the European Patent Convention, is prohibited from issuing patents on business methods, as such, as well as for software inventions, as such. However, my understanding is that patent attorneys can draft claims in a manner such that business method and software patents can be obtained in Europe if the invention as claimed includes a “technical contribution.”

The trilateral offices also are beginning to discuss description requirements on reach-through claims that relate to biotechnology issues and mutual recognition of both search and examination. Mutual recognition, however, requires that we can determine sufficient quality correspondence between the three offices so that we may recognize the search in each of the other offices. This would allow for a significant reduction in workload for all of our offices.

Another multilateral organization that we work with is WIPO, the World Intellectual Property Organization. WIPO has a UN mandate to promote intellectual property globally, and it administers many important intellectual property treaties.

With respect to patents, the Patent Law Treaty was concluded in June of 2000, achieving agreement on matters of form in patent applications. This treaty has 27 articles and 21 rules. The United States is drafting an implementation package to be able to accede to the treaty as soon as possible. The PLT has some very important provisions. It sets forth the maximum requirements that a country can require for an applicant as to formalities requirements and sets a specific standard requirement for an applicant to get a filing date in
that country. If an applicant provides (1) an indication that the elements attached to the submission are intended to be an application, (2) indications for identifying or contacting the applicant, and (3) a description or drawing in any language, he or she is entitled to a filing date. This is important as, in many countries, there have existed additional requirements, i.e., local working requirements or stamps that needed to be obtained prior to receiving a filing date.

After the conclusion of the PLT, substantive harmonization talks began in November 2000. The controversy that stalled the first harmonization talks was the issue between first-to-invent and first-to-file. This controversy still exists today. The United States is the only country that maintains a first to invent priority system and a significant amount of our users strongly favor it. That being said, the American Intellectual Property Law Association or APLA, the American Bar Association or ABA and the Intellectual Property Organization or IPO have all stated on record that they are very interested in moving forward with the first-to-file system. We have been considering this issue and the deep divisions that it engenders in the United States public.

However, there is a new way of proceeding in the current substantive harmonization talks. The Standing Committee on the Law of Patents or SCP, at the WIPO, has agreed to pursue a deep harmonization based on the best practices for an international patent system. There has been some recent progress in these discussions. In particular, the brackets have been removed from the language in the draft treaty documents that would create a true international grace period.

We also have developed a working group to deal with multiple invention disclosures and complex applications, as the current standard of unity of invention may no longer be the best practice. This is particularly the case with respect to emerging areas of technology, like biotechnological inventions.

The United States is the only country that maintains a first to invent priority system.

If the SCP effort is successful, we will have harmonized standards, mutual recognition of patent rights, and only a single application will need to be filed for multiple countries. This will also be a major cost saving for our applicants. Both American and Japanese patent owners and applicants can expect enormous benefits as a result.

The efforts of the USPTO in WIPO extend beyond patents. The Standing Committee on Trademarks, Geographical and Industrial Designs is also working on many issues. At the most recent WIPO Governing Bodies meeting, the Joint Recommendation on Well-Known Marks was adopted. An alternative to fully negotiating a treaty is to have joint recommendations by an international organization such as WIPO, and these recommendations tend to get adopted internationally. We also have been discussing cybersquatting issues in this forum. The United States currently is the only country with an anti-cybersquatting legislation. We have found that it is effective here, and it looks like other countries are interested in implementing something along those lines.

To copyrights, the final statutory to the first copyright treaty, the WIPO Copyright Treaty or WCT, needed for this treaty to enter into force, occurred in December. I understand that the WCT will be coming into force around March 6, 2002. We have also been involved with discussions on a potential audio-visual treaty dealing with audio-visual rights, and a broadcasting treaty dealing with broadcasting rights in the copyright area.

One of the major accomplishments of international intellectual property law is the Patent Cooperation Treaty and the ability of an applicant to preserve rights in the member states of the treaty while obtaining an expert opinion of the patentability of the subject matter of the application. The treaty is administered by WIPO. It has exceeded expectations. In 2001, over 100,000 PCT applications were filed worldwide. In the United States, there were over 40,000 international applications in 2001, and there has also been tremendous growth in developing countries.

Recently, the USPTO has been at the forefront of the effort to encourage greater participation in the PCT by reforming the treaty. Our reform proposal is a two-stage proposal. The first stage is to simplify procedures and conform the PCT to the recently concluded PLT, where feasible. Stage two is to move forward with a comprehensive overhaul of the entire PCT system. In response to the United States proposal, the PCT Assembly unanimously decided to convene a PCT Reform Committee, and the first meeting of this Committee took place last May.

The major elements of the first stage of our proposal include the (1) elimination of designations, (2) conforming the filing date to the PLT (3) elimination of a 20-month deadline for national stage entry, (4) elimination of demands, and (5) a combination of search and examination.

The time-frame for the implementation of this first stage is within the next few years. Elimination of the 20-month deadline was already unanimously adopted in the PCT Assembly in September 2001. This change should eliminate the unnecessary searching of applications that are being filed simply to extend national filing deadlines so that applicants may delay making certain decisions.

In terms of our other international efforts, the Agreement on Trade Related Aspects of Intellectual Property (TRIPS) requires implementation of enforcement remedies. It requires civil and criminal remedies and the implementation of enforcement provisions that may be difficult for certain WTO members. I know there were some concerns mentioned earlier about the usage of TRIPS, but let me be the first to tell you that we work very hard with
We work very hard with the United States Trade Representative to ensure that the different developing nations are living up to their obligations.

the United States Trade Representative to ensure that the different developing nations are living up to their obligations.

The USPTO has set up specific training programs on enforcement requirements of the TRIPS Agreement. We have had several programs recently including one in Vietnam and one in Taiwan. We also participate regularly in the regional meetings of the Asia Pacific Economic Cooperation (APEC). APEC has an over-arching group that discusses issues more broadly than intellectual property, but a subgroup of APEC is the Intellectual Property Experts Group where intellectual property rights are specifically discussed. We also conducted the Symposium of the Americas in 2000 for training on intellectual property enforcement issues in the Western Hemisphere.

In conclusion, we believe that the protection of intellectual property rights is extremely important. The USPTO values the important role played by the cooperation of nations in multilateral intellectual property organizations, such as APEC and WIPO. In addition, the continued cooperative efforts of the trilateral offices is critical to achieving harmonized standards for patents that will benefit innovators around the world.

Question and Answer:

Question: Much has been done with harmonization between Japan and U.S. What remains to be done aside from that first-to-invent?

Stoll: I think that the U.S. and Japan are moving in a very similar pattern, although there are areas that remain different. For example, claim interpretation in the Japanese courts is still a little narrow, but that is more of a court problem with respect to Japan. The grace period is also somewhat different. Business methods require a technical aspect in Japan that is not required in the United States. However, there are not many differences when you are talking about the prosecution of an application as complex as these patent applications are. In many ways, we share the same concepts.

Question: Japan has been criticized for being unable to deal with the workload. How successful has the U.S. been, and are there are any lessons to be learned?

Stoll: In the United States we are expecting a 10 percent increase in filings, as we do every year. We are hiring over 900 examiners this year to pick up the backlog because otherwise we may have a period of 36 months from filing to patent grant, and we do not want that to happen. We would actually be costing the consumer if we did not grant patents in a timely manner.

Question: Would you amplify your thinking on the PCT with respect to the concept of deep integration?

Stoll: We are hoping for harmonization. If we are unable to get harmonization, I am hoping for a mechanism that interlocks the systems so that they can work together. The mechanism would provide for a mutual recognition of examination results between countries so that we can take these results into consideration when we are examining an application. That being said, I do believe that there is a chance to work towards a “harmonization” because it is in the interests of many countries.

Question: How many patent offices does the world need?

Stoll: Initially it is going to need a lot. Eventually it is going to go to regional systems with probably a maximum of six or seven offices. After that, the world would need one interconnected patent office. It might consist of those six or seven regional offices all being one but acting as different functions of that same one.

Question: How do you think that would affect the presumption of validity?

Stoll: One speaker made a reference to an expanded post-grant procedure, which I think the United States should go forward with regardless of the international system. The confidence of the applicant that their application is being treated the same whether they be of that nation or not is extremely important, probably second only to the issue of sovereignty in these countries. Those are the two issues that I think are the most difficult to resolve.
I want to talk about intellectual property from a slightly different perspective. When we think about patents, the words monopoly and litigation come to mind, and rightfully so, because it is a legally protected right for your invention. I will submit that businesses see intellectual property as having values other than litigation and monopoly. To leverage those intellectual properties, I like to look at them from a licensing point of view and share with you how the IP licensing practice interacts in the global market place.

Figure 1 shows a product that was launched in the early 1990s. When this product was designed, the corporation found that there wasn’t a market big enough within the U.S. to justify the large design cost for it to be profitable. As a result, the corporation went to the global market and built a virtual international product team to share the design cost and reduce the financial risk. This made the product cheaper and the corporation instantly acquired a supplier base overseas. At the same time, the supplier became the corporation’s best marketing representatives locally. This international product consortium team became the trend in corporate USA since early 1990. In my industry, every product conceived, invented and launched needs to be put together by an international team for reasons of global marketing, sharing of design cost, and reducing product risk.

Figure 1 shows what a global product team is actually like. In this multiple-component product, each component has a different color. Different colors represent different sub-design teams making the components, and they are located in different places geographically. Notice the words International Design Team on the map. That means various pieces were designed in different places but assembled in one place. When you design it together and produce it together, intellectual property is being generated and flown among the teammates.

In actuality, a simple global product team has a fairly complex contractual and IP arrangement to hold the team in place. When a corporation makes a product, the corporation owns all of the intellectual properties. Intellectual property agreement is the key to launching a new product. In the map in Figure 2 you can also see that most of the team members consist of Asian partners. China, Taiwan and Japan have become key supplier nations for the aerospace industry (and many others) because of the cost structure, quality and skills in the workforce. In exchange for access to the skilled workforce, affordable labor and an emerging market, the corporation seeking to gain the benefit is asked to offer intellectual property rights, explicitly or implicitly, of the product and manufacturing process.

When you approach potential Asian partners, they usually want intellectual property rights. They want to make sure that they can continue to produce whatever they conceive and design. Further, they want to be able to make the same or similar product for you and your competitors using the machinery that they invested in and the process they perfected when they made the product for you. The process, know-how and market information are intellectual properties that Chinese, Taiwanese and Japanese suppliers like to acquire to become major players in strate-
Twenty years ago, IP was mostly for defense purposes. In today’s international era, everyone gets together and shares intellectual property rights.

It is a very different world from where we were twenty years ago. When we designed a product and expected to own everything in IP, twenty years ago, IP was mostly for defense purposes. In today’s international era, everyone gets together and shares intellectual property rights.

Over the past twenty years, something changed in terms of how people look at intellectual property. Clearly, when we turn to Asian suppliers who work with us in the product team, they look at intellectual property as something that has value. All corporations worldwide are making sure they have a structure and a legal agreement to capitalize on that IP value. Intellectual property has business value, and that is slightly different from the product. As a product, intellectual property is unlike a traditional product that has a life cycle. A product has an initial cost to put it together, to produce it, and to purchase it. Once you own it, you have to maintain it. For example, there are fuel costs, taxes, repairs, and product disposal. So, a product has a life cycle that costs you money. You can sell, use or own it only once.

Intellectual property also has a life cycle. That life cycle generates value rather than cost. There is a value beyond the initial product. Let me start with the IP life cycle before a sale. Before a sale, I need to make the product. To make a product, I need the technical data and processes. The technical data is a copyright material. The processes are normally company protected, or proprietary information. I do not want my competitor to know my process so that they will not produce the product as inexpensively or as efficiently as I do it. Therefore, I will keep the processes as a trade secret and data as company limited/proprietary to make it difficult for my competitor to do the same thing or something similar.

Prior to sale, IP has value in terms of the distribution of labor. Normally, companies will keep their relationships and vendor lists proprietary. They do not want their partners and competitors made public. There is some value to that relationship because the relationship indirectly speaks for the future direction of a company, including its strengths and weaknesses. Then, there are design/parts that are already patented by one of the corporations in the team before the existence of the teaming arrangement. The team wants to put the design/parts in a new product. Those patented design/parts, a form of IP, clearly have some value. There are many other IPs with substantial value in a teaming arrangement, like shared processes, data, collaborated design features, cross fertilization among individuals, and team products for economic and business reasons.

The valuations of the IP become the foundations of licensing and cross licensing agreements in the consortium. The key to a successful international consortium is identifying the IP issues early in the teaming.

Therefore, before the sale of a product, IP starts to generate value for a business. The IP value stream continues after the sale of a product. For example, after a product is sold in my industry, people need to be trained on how to use it. The training involves data, information and know-how. They are published in documents like the maintenance and operations menus. They can also be purchased, so there are values because these are the products of intellectual property. Inevitably, when someone acquires a product, they like to customize it for a specific purpose. To modify a product, the manufacturer is in the best position to provide the information and know-how for the modification. Chances are the manufacturer probably went through many different variations of the product before it was launched. The customization is probably fairly close to one of the configurations in the prototype. The manufacturer, knowing the steps to provide the modification, again possesses an IP of some value.

In a global setting, when you
have a supplier team, the members of the team come from different places geographically. These suppliers naturally become the de facto agent to maintain the product in that region. These suppliers will continue to produce parts for maintenance after the initial production of the product. The parts produced for maintenance are the spare parts (which also have IP value). Like the printer industry, spare parts are profitable and repetitive business. They provide a steady revenue stream and a sound foundation for on-going business. Almost all the suppliers in a product team prefer to remain engaged in the spare part business after the production. Many more, who were not in the initial product team, also want to enter the spare part and maintenance market. There are many licensees who would like to make spare parts and get a piece of the action because of the profit. That is where intellectual property plays a role. To run a business, there are supplier bases that a corporation uses. A responsible corporation must also keep a crew to maintain its products anywhere on the globe. A corporation is solely responsible to certify spare parts and assure the interface of the parts to the product. Where does the intellectual property information, pertaining to the quality of service, product knowledge and part production, reside? The corporation is the owner and keeper of IP. Therefore, a corporation needs to convey that intellectual property to the people who are going to do the work. The conveyance of the knowledge and information is typically accomplished through the instrumentality of IP licenses that, in turn, generate values and revenue streams.

Intellectual property also affects how competitors work together in the marketplace. For example, a European manufacturer who wants to make a product just like mine requires the intellectual knowledge to proceed, and vice versa. If I want to make something like theirs, I am making something based on their intellectual property. There is an intellectual property agreement, i.e., license, to be worked out before I can do it. Short of such an agreement, making such a product will be an act of infringement that is actionable. Thus, an IP license generates value and sets up a threshold to prevent potential competitors from entering the marketplace freely.

Looking at IP from a licensing perspective means values, i.e., business activities, jobs and expanding markets. Values mean prosperity in our social, political system. To generate values from IP is hard work with or without the current patent law. That does not mean we should stop generating values from IP. Most of the IP licensing practitioners, like myself, show up for work the first day to receive piles of paper and files summarizing the patent portfolio that they are supposed to work on. These papers, by itself, have no value. The patents summarized in these papers have no value for the simple reason that patent right is the right to exclude others from using the invention. Value is something that will be generated when someone puts hard work into it. IP agreements need to be worked out with licensees to realize the value of the intellectual property.

Having said that, I want to backtrack a little to clarify what I just said. We can certainly sell a product and let selling more of the same be my business. But for one product, I can sell it only once. Then I have to go to the next one. What is so different about intellectual property in terms of value/business? The analogy of IP is this: If I find fish in my secret fishing hole somewhere out in a river, I can go there, catch fish and sell you the fish for value. The other way to do it is I can teach someone how to fish. He will become my competitor. I will fish out of my hole, but we will compete. We do not need to collaborate. By teaching someone how to fish or where to fish, I can generate values from teaching him the knowledge. But I can also set up a fence around my fishing hole. Every time my competitor comes around, or anyone else, he can fish, but I am going to connect him. I can go fishing myself, catch the fish and sell it, too. So, there can be a win/win scenario in IP business. That is how the industry starts seeing the IP/patent system as well. There is a changing perception within U.S. industry that intellectual property is a product, a business and a revenue generator... In the earlier days when I started, IP was considered to be something to create a product. Today, IP is a product itself.
try that the reward is worth the sweat.

In the earlier days when I started, IP was considered to be something to create a product. Today, IP is a product itself. That shift has been taking root in the industry and people have begun deriving the IP value by working with industrial partners. If we are going to look at intellectual property as business value, we must have a win/win strategy. What would that win-win strategy be? Here is something the industry knows that has worked: license, not litigate; help, not hinder; collaborate, not compete. When you collaborate, the labor is cut in half, knowledge is doubled, and a product is produced faster. This is the work of intellectual property value in the industry when we all collaborate, not compete as in the spirit of our patenting system — reward the inventor, share the idea.

KEITH MASHUS
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I want to thank Dr. Chiang for adding a third stage to the old adage about fishing. If you sell a man a fish, then he can eat for a day. If you teach him to fish, he could eat forever. Now, we find if you charge a fee to fish, then I guess those who can afford it will eat forever and the rest will have an incentive to go out and find another fishing hole they can put a fence around. I suppose that is the fourth and final stage of the story.

That in a nutshell is the issue in developing countries. Where do you draw the fences and when do you draw the fences in? The history of the development of intellectual property policy in the now developed countries shows that intellectual property policy depends upon the needs of inventors. It is endogenous and changes over time as economic interests arise rather than the other way around, which of course is what the American policy is to claim in developing countries. Here are some examples.

U.S. copyright policy in the 19th century was explicitly discriminatory. Foreign authors could not be copyrightied in the United States until Charles Dickens made an issue about it. And the United States itself did not join the Berne Convention, which is the fundamental copyright convention, until 1986 because until 1986 it had a manufacturing clause in place which said that only books that were published and printed in the United States were eligible for copyright protection here.

The Japanese patent system prior to the large changes in the late 1980s–early 1990s, really was aimed at trying to incentivize incremental innovation and diffusion of information into the economy. The Japanese system paid some costs for that. It generated a culture in which you do not get a lot of large advanced innovation, although that may be changing. But I think statistically you can show that there was a positive impact on productivity growth through the economy from having that system in place. I take it as a lesson that some developing countries could learn now.

What about the East Asian miracle? A lot of times it is claimed that many of the technical and productivity changes in East Asian firms had to do with the fact that intellectual property were badly protected until recently. That is true enough, but I will point out that in many of those countries the form of enterprise structure is such that there may have been an implicit protection of intellectual property, of trade secrets that was very difficult for other firms to take. It is not so clear to me that formal intellectual property rights are so significant in the history of East Asia, but some form of implicit protection may be necessary, or may have been necessary.

Are China’s reforms imposed? By that I mean the recent decision by China to join the WTO, and of course it did in November have a substantial amount of legal reform. Some of us have done empirical econometric work to try to characterize the nature of the endogeneity of patent rights at different levels of development. Take this with a grain of salt, but you find that if you think about the nature of the obligations in patents in the TRIPS agreement, which is essentially what the Chinese have adopted — their law is actually a little bit stronger than required by TRIPS. We would not ordinarily expect a country to adopt those kinds of
intellectual property rights can do trademarks can have that effect. The income in China and certainly countries. We have very little evidence supporting that case in developing countries.

Do they encourage incremental innovation? I think some kinds of intellectual property rights can do that if they are structured well. Utility models are an example. Certain aspects of trade secrets and trademarks can have that effect. When I engage myself in policy advice for developing governments, I do talk about the kinds of standards they can implement that will be pro innovation.

Do IPRs promote dissemination and diffusion? One can be excessively strong with one’s intellectual property regime and slow down dissemination. But some forms can have a positive effect on dissemination. I think the higher the rate of development or the level of development, the more you will find this dissemination effect.

I think extending and deepening markets is probably the most significant objective for developing countries. China is a very interesting example. What you find there is that an absence of national protection of trademarks does tend to have the effect of preventing well-known Chinese enterprises from organizing themselves across provincial borders. Moreover, if you do not have the kinds of legal certainty that trademarks and trade secrets and some other instruments here can provide, it is quite difficult to establish at a distance, particularly across borders, the kind of trust that is required for deepening markets.

In that context even lower income developing countries can generate some gains here, guaranteeing product origin. That is what trademarks are all about.

Finally, the only thing on which I am reasonably confident in terms of numerical evidence is attracting foreign direct investment and technology transfer. In middle income economies that have other characteristics that are pro-competitive, you will find that other things, which equal a strengthening of the intellectual property regime, has a substantial and positive impact on attracting investment and technology transfer. We do not have any evidence supporting that in the poorest countries, the least developed countries. If there is any evidence, it is probably the other way. Consequently, it depends very much on where you are.

What about intellectual property rights established for purposes of promoting economic development? The TRIPS agreement is exceedingly controversial, more so now than when it was negotiated some years ago for a number of reasons. I think it is fair to claim that a large reason why the WTO Ministerial in Seattle failed is because the Americans showed up wanting to do some extensions of TRIPS and many developing countries showed up wanting to roll it back. That was simply not a bridgeable gap between those two. Things have not changed much since then, except at Doha there were some agreements reached on intellectual property that I can mention here in a moment.

The biggest issues are technical assistance, administration costs, and compliance. The administrative costs of an intellectual property system can be large. I think many advocates of intellectual property do not quite recognize that. Estimates from UNCTAD suggest the costs may be many hundreds of thousands of dollars to the millions for even small developing countries per year. The World Bank estimates on this, which I did not do, are much larger. Frankly, you have to ask yourself whether that is an appropriate use of development resources—to be throwing a million or two out of a $20 million development budget into enforcing intellectual property rights. That means that the richer countries really do have an obligation to provide far more technical and financial assistance than they have been. With respect to compliance, it is going to be a long time before you get effective enforcement and compliance with many of the standards in the TRIPS agreement. We are now in a situation of trying to figure out how to accelerate that compliance. We have work programs going on in that issue at the World Bank. It is not just in intellectual property, but also in terms of product safety standards, customs procedures, and so on.

Developing countries need to try to limit the costs of administering an intellectual property system.
China to decide whether in fact to recognize a patent application in their own countries. That is fair enough, and I think it will have to happen. However, if a poor country is looking at American decisions on what is patentable and what is not and accepting those at face value, it is not clear to me that the standards being used by the U.S. Patent and Trademark Office are the right ones for Malawi or El Salvador. This is a very complicated issue in mechanism design that we are working on now.

We are discussing with many developing countries IPRs for small scale innovation and what they can do with such devices as design patents, utility models, innovative approaches to trade secret protection, and effective compulsory licenses with a required payment. IPRs for product development in terms of trademarks and geographical indications can be significant in any country.

Another very large issue is mechanisms for traditional knowledge and genetic resources, which is not in TRIPS at all. How will developing countries be able to register and protect their traditional knowledge? Standard devices in the intellectual property sphere do not really work very well in that context, but there will be some discussion in the next round of negotiations on how to use designs and collective marks for that purpose.

It is not just technology that is at issue here. There are many social concerns in developing countries as well, but they have to be addressed for the TRIPS agreement to go forward. One is medicines and access to medicines. It is a very complex question. I think those who are from the pharmaceutical sector are just going to have to recognize that the nature of this game is very different from what we think of as standard patent protection. In terms of those neglected diseases or orphan drugs that are not being produced in the world under the standard conditions of intellectual property protection, there will have to be some additional kinds of incentives in terms of funding available for research and development for distributing drugs widely at fairly low cost. We are only at the beginning of that process, and it is not clear to me that we have the mechanisms worked out well yet.

What about TRIPS and where is it going? If you are in the intellectual property industry and really want to see developing countries enforce and comply with their obligations in intellectual property, I think what you need to be doing right now is lobbying the American, European, and Japanese governments to start getting serious about market access in agriculture and textiles and apparel. After all, the grand design that led to the TRIPS agreement involved exactly that tradeoff. There is growing distrust within the developing country community about whether this will ever come to be. If in fact that is the case three years from now when the textiles and the apparel quotas go away but are immediately replaced by high tariffs and anti-dumping regimes, I think the TRIPS agreement will probably dissolve.

Developing countries are also looking for some serious attempt by the developed countries to meet their obligation in the TRIPS agreement to find ways to have additional technology transferred into the least developed countries. This is an obligation of the TRIPS agreement, Article 66.2. It has not happened. Many developing countries are looking to drugs, biotechnology, and geographical indications as a way of protecting their own intellectual assets.

I have just given you a pessimistic overview. Let me try to be optimistic. Personally, I think that under the right circumstances, stronger intellectual property rights can in fact have a positive impact in the long run on development prospects. The conditions under which that is possible are not much in evidence in the least developed countries and are becoming in evidence in the middle income developing countries. Intellectual property is somewhere down in the middle of the list of important factors in terms of how you can actually get your economy to grow, attract technology, and be more innovative. But many developing countries are now looking at this kind of a framework to think about how to implement standards that are appropriate for their own economies, and I think with some success.

Can intellectual property rights work? In some countries there will be costs in the short run or intermediate run. In the long term with appropriate standards, an investment climate and a regulatory climate that is pro competition and pro innovation, I think there can be some long term gains for not just the higher income and middle income countries, but some of the developing lower income countries as well. IPRs can support innovation and technology transfers so long as you recognize that this process is complicated and varies as economies become more developed.

Finally, IPRs need to be embedded in a broader system of regulation. Many developing countries are a long way from having that kind of regulatory system in place but there are efforts under way to try to have that inculcated.

Developing countries are also looking for some serious attempt by the developed countries to meet their obligation in the TRIPS agreement to find ways to have additional technology transferred into the least developed countries.
called for the elimination, on a very specifically defined time schedule, of about 90 percent of all the quotas and licensing requirements that China at that time imposed on imports. There was a regular schedule of phase-outs, there was a long annex to the agreement that spelled them out, at a very disaggregated level according to China's tariff schedule. The United States Trade Representative (USTR) later charged that China was not really complying with the agreement because as the quotas and licensing requirements were being phased out, China initiated an alternative mechanism that was called a system of automatic registration. The automatic registration system was not really very automatic. You had to get permission to import something before it could be purchased on the international market.

I went back and looked at what the data actually showed us. It turns out that if you look at the level of imports of the goods that had been liberalized by the end of 1995, that is the quotas and licenses had been removed in 1992, the volume of those imports into China from the United States at the end of 1995 was ten times larger than it had been three years earlier. Obviously, China's total imports had grown as well, but the share of imports represented by those commodities had increased six-fold. There does not seem to be much doubt to me that Chinese imports of these commodities increased very dramatically as they implemented the agreement. I think the lesson drawn from this is that sometimes China does not get credit for complying with some of their international negotiations in terms of market access.

What kinds of commitments has China made to become a member of the WTO? This is really a very interesting case because many of the market access commitments were in place in the bilateral agreement that was signed with the United States in the fall of 1999. Most of the market access commitments were in an April agreement that was signed by President Clinton. Between April and November the safeguard and a few other protectionist details were added.

China, of course, did not accede to the WTO until December of the year 2001, so there was actually a fairly long period of time between the time the general parameters of their market access commitments were known and the time they actually had to start implementing them.

In my book I go through perhaps one dozen examples of areas where China started implementing their commitments in advance of the time schedule that they were required to do so under their WTO commitments. AT&T, for example, in 2000 entered into a joint venture called Shanghai Symphony to provide broadband services in the Pudong district of Shanghai. Newscoop, Goldman Sachs, MSD Capital and other foreign entities were able to invest in China Netcom, a major telecommunications carrier running China's first broadband internet backbone. This investment occurred in 2001, well in advance of China's commitment to allow foreigners to invest in telecommunications services providers. Similarly AOL Time Warner formed a joint venture with Legend, the operator of a major internet portal. China was not required to enter into commitments of this type until after it entered the WTO but all of these transactions occurred prior to its entry.

Similarly China implemented some of its commitments with respect to the Information Technology Agreement in advance. By signing up for the ITA China agreed to bring all of its tariffs on information technology, semiconductors, and communications products to zero over a relatively short transition period. But they cut tariffs on some of these products at the beginning of 2000 and additional tariffs were cut at the beginning of the year 2001. China was not required to make any of these cuts until after they came into the WTO in December 2001.

Similarly, China liberalized construction, retailing, trading rights, and a number of other areas in advance of the time they were required to do so under their WTO commitments. More generally I would say that they are on a pretty good glide path in terms of market access. If you look at tariffs, for example, over the last 15 years, the average statutory tariff has been cut from 55 percent back in the late 1980s to 15 percent on the eve of the accession into the WTO. Over the next five years they will have to make additional tariff cuts under the commitments that they have made and their average tariff will go to 9 percent. I think many people characterize China as fairly closed. They argue that China's market access commitments in their WTO obligations are going to revolutionize market access. In terms of tariffs, China brought tariffs down very dramatically over the last 15 years. What is happening over the next five years is very continuous in terms of the rate of decline of tariffs. Obviously for a few key industries that were protected, tariffs are going to come down quite a bit, so there will be big impacts on those industries. But in terms of the general levels, the rate of decline is not going to be particularly rapid.

The same thing is true for quotas and licensing. Most of those were eliminated over the decade of the 1990s as a result of the market access agreement with the United States. There are only a few left. They will be eliminated. Trading rights is another area that has already been dramatically liberalized over the last 15 years. On the eve of entry into the WTO, only about 10 percent of the imports are products for which the right to trade is limited to one or a very small number of state trading companies. This traditional non-tariff barrier, at least traditional in transition economies, has also weakened dramatically in the run up to their accession to the WTO.

I think people in general are familiar with the large number of disputes that there have been on a bilateral basis with the United States during the 1990s. In particular, I think the 1994-1995 episode is
probably the most important. China was on the USTR Super 301 list and was threatened with massive sanctions if they did not come to compliance. Then an agreement was signed in February of 1995.

At that time, China was characterized, I think accurately, as the largest global exporter of pirated CDs and CD ROMs. There were about 70 to 80 factories at the time that had been identified as very large-scale producers. Massive amounts of these products were going into the international market. The agreement was signed and the Chinese started to implement it. They were taken off the watch list, and by March of 2000, the USTR basically said China was no longer a significant exporter of this kind of pirated intellectual property. They closed down more than 100 factories and destroyed the equipment that was being used in the pirating itself.

Pirated intellectual property is still widely available on the domestic market. Pirated software accounts for approximately 90 percent of all software in use. It is all imported. The problem is in other countries in Southeast Asia where the production of the pirated material originates. I am suggesting that they basically complied with part of the agreement that called for the elimination of China as a major source of pirated product in third countries, but they have made very little progress in terms of actually reducing the penetration of pirated product in the domestic market.

Nonetheless, I tend to agree with earlier comments about per capita income levels being an important determinant of enforcement. I am relatively optimistic because the value of copyrighted intellectual property in China is rising fairly dramatically. I do not know how accurate these figures are but by the end of the last decade, the value of books, newspapers, magazines, software, and other kinds of intellectual property products in China, was only about 2 percent of GDP. In the U.S. it is approximately 7 percent of GDP. As the importance of indigenous intellectual property rises the domestic demands for its protection will rise.

When you begin looking at the rate of growth of software, for example, and you start looking at Chinese policies in the software sector, more than two years ago China adopted a policy for software development that I considered to be very forward looking and completely different from the kinds of industrial policies that they promulgated only a few years ago in some more traditional manufacturing sectors. China basically wants to encourage the development of the software industry and recognizes that it has to be done at international prices. Tariffs have already gone to zero on everything related to software or anything needed to develop the software industry. There are no restrictions on foreign ownership. Therefore, the government recognizes that to move ahead in this industry you have to basically be very open and adopt international standards. The result is many new firms are starting up. The levels of software production are still relatively low, but they are growing extremely rapidly—about 20 percent or more per year. In 1999 output was about a little under 20 billion domestic currency units. The expectation is it will be up to slightly over 50 billion a year and a half from now. Further, surveys that have been undertaken by the Ministry of Information Industry, which is the key regulator, have shown that piracy is one of the biggest constraints on the further development of the industry in China.

The industry is beginning to exert pressure to improve enforcement of China’s very good laws. China has excellent laws on intellectual property. The problem has always been enforcement. I think we will see China moving to enforce these laws. I would predict much sooner than the time that they get to $7,500 in 1990 PPP per capita income. I think it is going to happen. However, I do subscribe with the theory that it is going to be endogenous pressure so that it will be as important as external pressure in terms of pushing the transformation.

In summary I am relatively optimistic on the general compli-
Lardy: The software producers like to be price discriminators and to some extent they can. However, because of the market's segmentation issue, it gets very difficult. If they put something on their server that everybody can access, I do not see how they can price discriminate. In effect, they are price discriminating now by enforcing IPR rules to the extent which they can get them enforced in high-income countries and settling for a very low percentage of legal software in third world countries. I think what they have now is probably a better solution from their point of view given the difficulty. It seems to me putting it on their server eliminates any ability to segment. Keep in mind that in China you buy this pirated software for pennies. What price are they going to put it for on their server that is going to generate any income?

Maskus: There are many technical solutions to these problems and most of them do not last more than a week or so because they are quickly overcome. Frankly, I suspect that the really large software platform developers such as Microsoft and Oracle would certainly prefer to have more enforcement of their rights in a place like China, but they are also not all that unhappy that everybody is getting used to software protocols put out by Microsoft and the rest. This is a long-term market network effect.

Question: Do you think trade sanctions are a good measure to enforce intellectual property protection?

Maskus: No. Sometimes they are the only way. Specifically in the pharmaceuticals medicine area it has been reaffirmed that nothing in the TRIPS agreement will prevent developing countries from taking whatever steps they think are necessary to maintain access to the appropriate medicines. I think what it means is the WTO members have agreed that in those cases where there is an obvious health emergency, like HIV AIDS, there would not be a dispute settlement case taken against a country that chooses to engage in compulsory licensing or parallel trade or in fact issuing a compulsory license to an exporter from another country who wants to supply the market. I think that issue is probably pretty well settled.

Lardy: I think the example of the U.S.-China agreement, the second agreement in February, 1995, would never have come to pass if it had not been for the threat of sanctions on the part of the U.S. Since we are the biggest export market for China by a very substantial margin and the sanctions were going to be put on billions of dollars worth of product, I do not think we would have ever gotten the agreement without the threat of sanctions. Whether or not it "worked"—I mean it worked in the sense that the pirated product is not originating in China anymore—but it just displaced it to other countries. In a more global sense, it did not work. It worked in the sense that this irritant in the bilateral relationship between China and the United States disappeared, but I have not heard anybody from the software alliance or any of these trade organizations say that it has been a solution for their problem.

CLOSING REMARKS

Hugh Patrick
Director, Center on Japanese Economy and Business, Columbia Business School

The protection of intellectual property rights has been the basic theme today, and that of course fundamentally is broader than patents. We have been focusing on patents because you cannot adequately consider copyright regimes, trademark regimes, and trade secret regimes as well all in one day. Given the importance of patenting, this focus has been appropriate. At the same time several persons properly alluded to the importance of the copyright regime since it is much longer lasting and perhaps more onerous than patents.
The justification for protection of intellectual property is to generate more intellectual property. The purpose is to provide incentives for innovation. The idea is that if inventors cannot extraproariate to themselves for some extended time period the benefits of their inventions, then they do not have an incentive to invent. That has always been the intellectual rationalization for allowing a price higher than zero for intellectual property rights, in other words not to make them a free good even though their marginal cost of distribution is essentially free.

A second theme today has been the tremendous convergence between the American and Japanese patent systems over the last 30 years. The bilateral tension that used to exist, particularly in the 1980s, has essentially disappeared. As I understand it, the substantive differences are now only minor. The first to invent versus first to file is symbolically an important issue, but we learned today that substantively it is a trivial matter.

The third theme is that the U.S. and Japan have a common interest in cooperating together against Europe. The concern for both American and Japanese policy makers is what to do with the fact that Europe has a different set of rules in some areas. This is an ongoing source of tension.

There is always going to be an inherent set of conflicts and tensions over intellectual property rights and their protection. Where you stand on this issue depends on where you sit. If you are the company or the individual that has invented something, then you want the strongest protection possible so you can reap the benefits. If you are concerned about the national interest of a country and thereby its social welfare, you have to consider a different set of public policy issues. In our discussion in the third session it was very clear that there is a big difference between the countries that are technologically rich and technologically poor. That correlates highly with countries that have high incomes and those that have low incomes. What is in the national interest of a China or a developing country more generally is probably quite different from the national interest of the United States, for example.

We have also expressed concern not only about laws, rules and policies, but the institutions that administer those laws. Just as innovation itself is a dynamic process, it requires that the process and procedures for awarding patents have to be dynamic as well. The institutions that are administering those cannot be static.

Some interesting issues were raised that we did not have time to consider today, particularly in terms of business practices and business strategy. It was pointed out to me that one should not think of a patent as an isolated event but as one component of a company’s strategy in a particular product area or research area for a group of patents, not only for defensive purpose but because they are inter-linked. One must think about patent strategy in terms of groups or clusters of patents. That is an area that is worthy of future research.

I think there are two ways of approaching sleeping patents. One is to wake them up and make them generate money, and the other is to let them lie because they will never generate any money—they only generate costs. For companies, one of the questions is how do they management their portfolio of intellectual property rights, patents, and so forth? It costs companies money to maintain a patent. The question is whether it is worth the money. I suspect that most companies, once having invented something and gotten the patent, thereby have vested interest in it and are not about to drop it. Companies are beginning to discover that they must think through their strategy for managing their intellectual property portfolio. How do you add to it? How do you let some patents stay asleep or get rid of them? Such issues must be addressed in order to reduce the cost of managing that portfolio.

The discussion on intellectual property protection in developing countries is very important because we know that technology is a real driver of economic development. It also requires people who can use the technology, so education and some capital are also necessary. But it is not technology that is developed in the developing countries. It is technology that exists in the world and is brought—notice I use the word brought, not bought—from the developed countries that have it. The key issue is the terms under which that technology transfer comes about. I think it is quite natural that developing countries and their companies want to get the technology as cheaply as possible. The word we have used today is piracy, but basically we are talking about stealing. All countries in the course of their development have stolen technology in one way or another.

At some point in the development process, whatever the per capita income level point is, it becomes worthwhile for a country to start protecting its own intellectual property that its citizens and companies are developing. We have seen that in the historical development of the United States and of Japan. China is still at the stealing stage. If you are from Korea, what do you do about dealing with China if you do not want to go to the World Trade Organization? If I were a Chinese, I would say it is easier to steal from the Koreans than from the Americans, if they have comparable technology, because the Koreans have less clout. They do not have a USTR and an American president that can come in and punish me. I certainly am not arguing that companies should steal technology, and indeed am against that, but if that is the corporate strategy then it should consider how to minimize the risks of retaliation from stealing.

In a global perspective that is not a very efficient way of trying to solve the problems of technology transfer. We have to find other ways of dealing with them.
知的財産権とアジアにおける日米協力の展望

2002年2月15日、コロンビア・ビジネス・スクール日本経済経営研究所は、コロンビア大学法律学院日本法センターと協力して、「知的財産権とアジアにおける日米協力の展望」と題する国際会議を開催しました。合同会議には、ビジネス、法律を専門とするコロンビア大学関係者をはじめ、知的財産権を専門とする弁護士や企業関係者が多数参加し、現状は今後の展望について活発な議論がなされました。プログラムは、以下の通りです。

閉会の辞：デイヴィッド・ワインスタイン
（コロンビア・ビジネス・スクール日本経済経営研究所副所長）

セッション1：日米の知的財産権システムの現状：協調と対立
司会：ウイリアム・ラップ教授（ニュージャージー工科大学）
竹中隆子助教授（ワシントン大学法律学院）
ロバート・マインズ（フェアフィールド・リソース・インターナショナル）
リー・ブランステナー教授（コロンビア大学ビジネススクール）

セッション2：知的財産権のフロンティア：ビジネスと特許
司会：カーチス・ミルハプト教授（コロンビア大学法律学院、日本法センター所長）
ジェフリー・プラント（JLBコンサルティング）
イアン・コックパーン教授（ボストン大学マネジメントスクール）
リチャード・ネルソン教授（コロンビア大学経済学部）

プログラム基調講演
ロバート・ストール（米国商務省特許庁国際局行政官）

セッション3：開発国における知的財産権の管理：米国・日本・中国
司会：メリット・ジェノウ教授（コロンビア大学国際公共政策大学院）
ニコラス・ラーディー（ブーキング研究所）
キース・マスカス教授（コロンビア大学経済学部）
ステディ・ペーン・チェン（ボーイング特許部部長）

閉会の辞：ヒュー・バトリック
（コロンビア・ビジネス・スクール日本経済経営研究所所長）