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Intellectual Property Rights in Japan – Has Anything Really Changed?

Robert A. Myers
Fairfield Resources International, Inc.
Stamford, CT

MITJP 98-05

Center for International Studies
Massachusetts Institute of Technology

THE IBM ORIGINS OF DISPLAY TECHNOLOGIES, INCORPORATED

Robert A. Myers
Fairfield Resources, International
Stamford, CT

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Center for International Studies
Massachusetts Institute of Technology
Room E38-7th Floor
Cambridge, MA 02139

phone: 617-253-2839
fax: 617-258-7432

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IPR Importance Has Increased

Worldwide enforcement of intellectual property rights (IPR) has become a major issue in the last decade of the twentieth century. Piracy is not new, of course. Forty years ago, graduate students could order photocopied pirated texts from Taiwan for a tenth the price in a bookstore, and the ubiquity of the photocopier has even made "piracy" of currency, a.k.a. counterfeiting, a cottage industry. Nevertheless, the increasing value of intellectual property, whether it be of inventions, trade secrets, or programs, as well as of copyright material available on the world wide web, combined with the increasing availability of copying technologies that make the Xerox machine's limitations even more evident, has brought the issues of IPR to the forefront. Indeed, the question of protecting an enterprise's intellectual property is approaching the same importance in an enterprise's selecting manufacturing and development sites as taxes and wage rates.

There are many dimensions to protecting intellectual property, ranging from never introducing valuable IP into an economy where rights are not recognized and protected to mounting a rigorous program of patenting and copyrighting everything valuable, including the identification and protection of genuine trade secrets. As it happens, IP is in danger everywhere in the world. Indeed, it is in the US that software piracy losses are believed to be by far the largest, although – in contrast – in Russia and China, among others, virtually all business software is believed to be pirated. On the other hand, in the US, as in most of Western Europe, legal protections for IP are strong, and the penalties for misappropriation are not only substantial, they are enforceable and enforced. Nevertheless, a patent is expensive even where it is not valuable, and one of the first questions to be answered in an IPR protection program is "where to file for a patent".

Where File for a Patent

The factors affecting where one should file for a patent are straightforward. Where will any product be manufactured, and where it will be sold. Where the competitors are currently doing business, and where they may do it in the future. Where is infringement likely, and where might there be opportunities to license the patent. How many patents in that field you already have, and how good they are. And, since a patent costs real money, both to obtain and to maintain, the budget is a final hurdle. No less important, though, is whether the patents will be enforced by local authorities and, if they are infringed, will appropriate damages be assessed. In the final analysis, these factors will dominate, often leading to a decision not only to desist from patenting, but also not to establish certain kinds of businesses if the IPR climate is not satisfactory.

In contrast, we are also seeing a trend in which countries in which "intellectual property" was for decades an oxymoron are joining the United States and Western Europe as strong advocates of protecting the rights of creators and owners of intellectual property. Japan is a case in point, as in so many issues probably the leading example of this trend. A recent workshop sponsored by the MIT Japan Program in Cambridge focused on the current status of intellectual property in Japan and Southeast Asia, posing the question, "Has Anything Changed?" The consensus of the attendees was that, in Japan, at least, things are definitely changing, although perhaps less in reality (*honne*) than in appearances (*tatemae*). Not only are Japanese laws and regulations being changed, but it further appears that the attitudes of both government bureaucrats and industrial leaders are changing.

Worldwide Piracy Statistics

The statistics on piracy are staggering (if in many cases based on estimates). For example, in 1997, worldwide software piracy losses (programs that were used but not paid for) totaled some $11.4B. Americans should not be sanguine about these numbers. Although much of the stolen software, probably most of it, was stolen from American

owners, some $2.7B of the total, by far the largest portion, was stolen here in the USA. 23% of the software, 43% of the business software, was stolen. In China, it was estimated that 96% of the software was pirated, totaling about $1.4B. The total for Asia came to $3.9B. Eastern Europe, too, saw far more software stolen than paid for; except in countries eager to join the EC and NATO, the piracy rate neared 100%: 89% in Russia, 93% in Bulgaria.

Estimates for piracy of movies are not as precise, but a recent article suggested that virtually all of the home videos seen in China are pirated, distributed on inexpensive minidisks. It would be a formidable task to even guess at the losses from patent infringement and theft of trade secrets. To sum up the situation, a list of countries with serious IPR problems would look like the United Nations, with the notable absence of the EC, Japan, Taiwan, the US, and Canada (and, perhaps, a number of countries where there is neither a large GDP nor a significant presence of foreign business).

Countries with IPR problems are small (Israel and Singapore) and large; Muslim (Pakistan and Indonesia) and Christian (Mexico and Brazil), both emerging and mature economically, former US allies and antagonists. What clearly characterizes these countries, however, is that they are predominantly consumers of intellectual property rather than creators and owners. The interests of the native consumers are aligned with those of native entrepreneurs and, consequently, with those of the government. In the near term, barring strong external pressure, everyone benefits from piracy. Japan used to be just like the rest, with the powerful government bureaucrats working closely with business interests to ensure that Japanese companies were not prevented from succeeding because of a lack of patents or copyrights. In a famous instance, MITI leveraged IBM's insistence on owning 100% of IBM Japan into securing a license on all of IBM's information handling patents.

In a more notorious case, IP "piracy" became grand theft in 1982, when in an FBI sting Hitachi engineers and executives were caught red-handed stealing hard disk hardware from an IBM plant. Today, as we shall see, such dealings are much more businesslike,

with legally enforceable licenses and technology transfers enabling both parties in such a transaction to come out ahead.

Has "Japan, Inc." Targeted US Research and Innovation?

The stunning success of the Japanese economy in the late 1980's sent mixed signals to the US government. Should the US copy some of the Japanese practices and institute government-mediated industry, an "industrial policy"? Should US companies band together in keiretsu-like families? Should antitrust laws be amended to shelter some presumably useful cartels? No wholesale changes were made and, as the Japanese economy sagged in the 1990's, it became clear that a major cause of Japanese success had been the negative cost of capital in the 1980's, triggered by the (in)famous Plaza Accord of 1985.

Nevertheless, many American politicians did not understand why Japan had succeeded, and why the US, in comparison, had lagged. In a situation somewhat akin to the debate over whether the USSR could have developed an atomic bomb without assistance from spies and fellow travelers, some politicians loudly claimed that the Japanese had succeeded because they were freeloaders, exploiting American innovation. Worse, they were exploiting American innovation that had been paid for with federal funding. This made good press copy, and eventually led to a Senate investigation.

The investigation focused on such observable facts as the number of Japanese graduate students at prestigious American institutions (virtually all paid for by either their employer or the government) and the number of professorships endowed by major Japanese companies at schools like MIT. These numbers were then related to Japanese commercial successes that had been based on US taxpayer funded academic research. The problem the investigators eventually faced, however, was the gap between "innovation" and "commercialization". It was generally conceded that Japanese inventions were not as fundamental, were not as valuable in the long term, as American inventions. However, the time and money needed to commercialize many important

inventions were not acceptable to American companies with a quarter to quarter earnings measurement. The Japanese, however, had been willing to make those investments, and their commercial success was only a fitting reward for the risks they took.

The committee also explored the possibility of locking up the American innovations. This was eventually seen to entail unacceptable costs. The main problem was that the Japanese companies were not "stealing" anything; they were taking university research that was by intent in the public domain. The primary engine driving most university research, in fact, is the idea that it will be published, and public. Even the publication delays that some institutions are agreeing to in return for substantial research grants are not easy to accept, and any formal prohibition on publication or transfer was viewed as a major imposition on academic freedom. Besides, it was argued, the know-how is surely going to move with the students, and there was no acceptable way to keep them from coming, learning, and going back.

The verdict, in this case, was "innocent."

Japanese Attitudes Are Changing

Now, however, we can read in the Yomiuri newspaper that the Japanese "Government to bolster steps against product piracy" by others in Southeast Asia from Japanese companies. And one might surmise that these steps are more than just for show. Led by the interests of their largest and most successful companies, MITI and other Japanese government agencies have joined the "haves". When seven of the ten companies receiving the most US patents are Japanese, and Japanese companies have major ownership interests in the largest movie studios and distributors of CD's, it can hardly be a surprise that protecting IPR has become a major priority for Japan.

To a limited extent, this is not entirely new. A 1991 Fujitsu publication, for example, stated that "R&D strategy and patent strategy are fundamentally and closely linked". Fujitsu and other Japanese companies have for a long time given their new hire engineers

substantial formal training in patents, as well as giving them three to six month assignments in the patent department, reading and reviewing competitive patents. Fujitsu literature states that (in my translation) "Use of the patent system grasps the essential problems of the technology development business". What Fujitsu management did not grasp at the time, however, was the utility inherent in offensive use of their large patent portfolio.

A cursory comparison of patents in Japan and the US indicates how far they have to go even now. In Japan, it takes twice as long to get a patent (36-48 months) as it does in the US. The average cost for filing and defending the application is twice the US cost. Maintenance costs are higher than in the US, and increase with time. In 1996 the Japanese Patent Office received 4.5 million applications, while the US Patent Office received 960 thousand. In 1994, Japanese Universities received 124 Japanese patents while US universities received 1862 US patents. The average Japanese award for damages from infringement was $383K while in the US it was $92M. Evidently, it is time for a change.

A major factor that will contribute to the smoothness of any transition is the recently enacted "financial big bang." Although much less of a bang than advertised, the new trend to openness will make international competitiveness much more important for many Japanese companies. At the same time, financial transactions will be freer, less subject to MITI intervention and manipulation. Thus, companies that join in the international licensing game will be freer to do so abroad, and less subject to limitations at home.

In China, Nothing New

One can contrast this with the situation in China. A key aspect of the Chinese IPR environment is the lack of firm "rule of law". Even where the interests of the central government are paramount, and favored enterprises are protected in various ways, the provincial governments, with different agendas and different priorities, can and do

promote what we see as piracy. The government has enacted legislation that superficially makes Chinese patent and copyright law similar to that in the West and Japan. However, the lack of consistent interpretation, much less enforcement, of these laws means that, at least for the present, they are paper tigers. For the foreseeable future, protecting the rights supposedly granted with a patent, the right to prevent someone else from practicing one's invention, is moot. People applying for Chinese patents do so in the hope, if not expectation, that China, too, will sooner or later (presumably before the patents expire) begin to enforce its IPR.

Ingredients of a Healthy Patent Environment

The success of a patent law that will fulfill the intention stated in the US constitution to "promote the progress of science and useful arts" requires a number of elements. The patent must teach the invention well enough so that one reasonably skilled in the art can practice it. Patents must be for useful, novel, non-obvious inventions. This requires a trained team of examiners, applying a consistent body of practice and case law. It demands a forum in which a questionable patent can be challenged, or reaffirmed. Where rights are infringed, damages commensurate with the loss need to be levied and collected. Trade secrets, too, must be protected, and penalties for misuse of copyright material, as for patents, must suit the harm. All of these needs, as exemplified by US IP law, are intended to reward innovators and creators, to assure them the fruits of their creativity.

Japan still has a lot to do in order to meet all these tests. As only one important example, there is virtually no legal protection for trade secrets. In China, however, almost none of them hold. Patents can be granted by a province, with no coordination necessary with the central patent office. They need not be novel. Indeed, a province might grant a patent to a local enterprise on a product already in production in another province in order to protect the local company. Damages are extremely rare, and it is widely felt that a trade secret brought into China might just as well be published in the local newspaper. Obviously, there are other benefits in doing business in China, and the dearth of IPR protection has not yet slowed China's explosive growth and the rush of foreign companies to do

business there. A consideration of the changes now under way in the Japanese IPR environment may indicate what we can help encourage China to do in order to make for a more uniform worldwide IPR environment.

Japan – A Manufacturing Mind-Set

Since the Meiji Restoration of the late nineteenth century and Japan's rise as a world power, the Japanese economy has been based on manufacturing value add. Always short of natural resources, modern Japan has combined an educated, hard working, disciplined work force with superb trading skills to achieve its current position. Unable to export either foodstuffs or natural resources, Japan first exported labor, like most third world economies, but was able, in a remarkably short period, to convert to an exporter of finished goods. Isolated by its language and writing system, and insulated from Western culture for hundreds of years by self-imposed isolation, there was little opportunity for the creation or consumption of Western drama, music, or literature other than in translation. Thus, the Japanese were well justified in concluding that their most valuable intellectual property (even more than that of nineteenth century England) lay in its manufacturing know-how and secrets.

Thus, not only is Japan's modern economy based on manufacturing, it is led by executives with manufacturing experience. Even research and development, as critical to product success in Japan as elsewhere, have been under the management of the "works" manager in most cases. Development is the servant of production. The "way of making" is the core competence. A company might tell a stranger its product plans, or pricing or profit targets, with little compunction. On the other hand, a plant tour would be likely to consist of little more than an hour or two in a conference room, with lots of tea and small talk, but little "touring".

Japanese Patenting Background

Even the Japanese patenting practice was shaped by this mold. Japanese patent law encouraged relatively few, narrow claims in a patent, thus catering to incremental improvements in a product or process. The time to grant a patent was exceedingly long, and while the patent was pending anyone could practice it. Even when patents were issued, MITI has used its "administrative guidance" to ensure that no Japanese company that needed a license to a patent would go without one. Needless to say, this compulsory licensing did not extend to foreign companies, and has been a significant contributor to the perception of "Japan, Inc." Patents served to protect Japanese companies from outsiders. The guidance exercised by MITI tended to protect companies in an industry from excessive competition (even from Japanese newcomers) and this minimized their risk. The patents did not, however, offer much, if any, competitive advantage vis-à-vis Japanese competitors, nor did they tend to promote a high respect for the value a patent could confer. Copyrights, too, were routinely ignored, so that the piracy of Western books and manuals as well as recordings was relatively common.

Japanese Legal Environment

A foreigner was and is, of course, free to bring suit in a Japanese court for redress. This, however, is still not a credible option. Japanese courts are heavily overloaded, but that doesn't mean they work hard. There are very few lawyers -- less than 10,000, compared with nearly a million in the US -- and even fewer judges. Whether there are too many lawyers in the US is irrelevant; in Japan, there are simply not enough to go around. Even where a suit is brought, the judges emphasize reaching a settlement, regardless of the balance of equity or law. Cases routinely drag on for years, often ending without a settlement when one of the parties dies of old age.

Patents and Japanese Multinationals

Nevertheless, Japanese multinationals have accumulated enormous portfolios of Japanese (and US) patents, at considerable expense. In recent years, the most obvious use of these portfolios has been defensive. As they expand abroad, these companies are faced with

entrenched local companies, often with strong patent positions of their own. Not only do they use their patents, properly, to defend their market position; they often assert their patents against the Japanese companies and demand very high royalty payments. Only by having a comparable portfolio have the Japanese multinationals been able to expand affordably abroad.

There are certainly other reasons why a Japanese company may pursue a serious patent program. As IBM has shown, it makes for good advertising, strengthening the brand image of a high tech company. Inventing, and analyzing the inventions of others, has been found to be good for training young engineers, as Fujitsu among others has found. By sending all of its new engineers to a six month assignment reading, analyzing, and reporting on new patents in their businesses, Fujitsu is able to educate these new hires in what is important, who is doing it, and how. Perhaps, too, Japanese companies have been patenting because "it is what advanced companies do", and when they were prospering, management did not have to examine the economic justification of its patents too closely.

As a result of all these factors, Japanese companies have a major share of worldwide patents in businesses in which they have a major share of the business – more than half the patents in automotive and electrical and electronic fields, less than 10% in communications, chemicals, drugs, and foodstuffs, and hardly any in space technology. Now, however, we are seeing changes both at the governmental level and in the companies themselves, as they attempt to find value in their patents.

In doing so, they find themselves at a distinct disadvantage. Although they have been engaged in licensing negotiations with major American companies for some time, most companies relied strongly on MITI and luck and as a consequence few Japanese companies developed much expertise in licensing. Their periodic meetings with American companies such as IBM and TI amounted to OJT (on the job training). Much like today's Internet community, the Japanese companies viewed charging for a patent license as somehow unfair – either you were in the "Club", and were licensed, or you

were out. Even today, many mid-size Japanese companies are shocked when an American company requests payments.

A New Outlook

Nevertheless, CEO's of companies like Hitachi, Mitsubishi Electric and Fujitsu are quoted as putting new emphasis on licensing income. They are shifting their patenting focus from Japan to the US, where the courts are much more effective. At the same time, Japan is modifying its patent laws and patent granting procedures to make them – at least on the surface – more like the rest of the world. What has been a four-year delay in issuing a patent is to be shortened. Penalties for infringement, formerly barely a slap on the wrist, are becoming closer to actual damages, although triple damages will not happen soon.

In another attempt to bring Japanese IP practices up to date, MITI is leading an initiative to encourage companies to exploit their "sleeping" patents. A sleeping patent is defined as one that is neither being used nor being licensed, and MITI put a number of 500,000 on those it thought had promise. One might well question this number, of course. Since so many Japanese companies engage in helter-skelter patenting, it is likely that an enormous number of Japanese patents are simply worthless. Sleeping, perhaps – but not worth waking up. On the other hand, this initiative could be a small step in the direction of licensing "non-core" patents, patents in fields which are not central to the enterprise's business or strategy. This is, even in the West, still barely a visible trend, but it could have important bottom line implications if executed well.

Changes Promised in Japanese Universities

Even academia is getting into the act. This would be a near revolution. The accepted image of Japanese higher education is that students do all the work in getting in to a selective institution such as Tokyo (National) University or Keio or Waseda (private) University. Once accepted, students rarely attend class, much less study. Until very

recently, getting a good job was almost entirely a function of having gotten in to the right university. Thus, undergraduate education is deplorable. Graduate education is not notably better. A professorship, like any other job in industrial Japan, is something one got by seniority. Once having been accepted as an Assistant Professor, one only has to stay long enough to have an inside shot at a professorship. Outsiders are not recruited, are rarely considered – even the entry-level faculty positions are filled with alumni who have already been identified by a professor as a likely successor.

Perhaps needless to say, this culture was not conducive to the creation of valuable research, much less of valuable patents or copyrights. Japanese companies did and do virtually all the worthwhile research (and all of the development) in the country. The few students who are genuinely interested in a graduate education and a research career almost always go abroad, as evidenced by the careers of nearly all of the relatively few Japanese Nobel Prize winners. Thus, the sparse patent statistics quoted elsewhere are only to be expected.

Now, however, the government is taking a few small steps to remedy the situation. They are even talking about making an undergraduate education meaningful. Actually accomplishing this, if it is even possible, will take years. In the meantime, a little is changing. Faculty at national universities can now share in the licensing payments for their inventions, and major schools like Waseda and Tokyo University are setting up technology transfer departments. Of course, they have a long way to go. Japanese universities have only rarely done world-class research, and their patent output is pathetic. The leading Japanese patenting university (Tokai University, not at the top tier academically) received only 13 patents in 1997; Tokyo University received only 5. In contrast, UC received 180; MIT, 108. Thus, unless the faculties recruit research-oriented staff, who would do valuable research, the chances of much in the way of technology transfer are small.

Impact of the 1998 Asian Economic Crisis

A serious case of economic malaise has come to Asia. Japan is in a two-year recession, and that is the good news. It would be surprising if these events did not affect the IPR situation. The credit crunch is limiting investment and corporate growth. This might naturally be expected to promote patent and other licensing as a revenue producer. At the same time, companies should be more mindful of protecting their IP, thus enhancing IPR protection. Moreover, if companies are limited in investing in developing new proprietary IP, they may find it attractive to license existing IP from foreigners. Although requiring a cash outlay in most cases, the cash would be less than the cost of doing it themselves, while decreasing time to market in a major way. They will almost certainly be interested in licensing at least some of their own intellectual property to foreigners for hard currency.

This is not the whole story, of course. Particularly in Japan and Korea, where "lifetime" employment is difficult to escape, labor is not a variable expense. Still, a company might well be inclined to use its existing skilled labor as part or all of the up-front payment for a license. In such a case, the licensor would get an immediate benefit, in the form of the non-cash investment needed to commercialize a technology plus the promise of future royalty payments. Since there will be acute shortages of foreign exchange in most Asian countries, such a relationship would seem more likely than a simple payment for a license.

The are also a variety of macroeconomic factors which will tend to favor (or mitigate against) IP licenses. If local currency has depreciated, local labor and supplies costs will be low, making indigenous innovation and development advantageous – assuming the enterprise can remain solvent.

There are also major negative implications for licensing from the Asian crisis. With business in terrible shape, the risks of being caught infringing another company's patents may well be viewed as more acceptable. Moreover, the motivation to do so will increase as money for both development and licensing dries up. Even where a licensee is willing to pay, he may be unable to do so, and attempt to renegotiate the terms of a license. It is

still early to tell, but all of the above have been observed at one time in the past few months.

Government Promotion of IP Generation

Japan has been the leading practitioner of precompetitive industrial cooperative projects. This system, practiced by MITI and immortalized as "Japan, Inc.", was so popular that many other countries in Europe and then US, as well as Asia, have emulated it. Of course, the US had its own brand of government-subsidized R&D, mainly through defense contracts and also in DoD and Energy Department National Laboratories. The latter, a $5-6B national resource are, like the Japanese Universities, adding "technology transfer" to their charters – if not to their great successes, at least not yet. The US has, moreover, complimented MITI to the extent of trying to make its own version of the cooperative R&D projects under the rubric of the Advanced Technology Program.

It is not my purpose here to discuss the (lack of) success of the US programs, however, What many people may not realize is that the MITI enterprise has hardly been a complete success. Indeed, the only clear success was the semiconductor project – which enabled the major Japanese high tech companies to catch up with the American leaders and, in some fields, to take the lead. Virtually all of the successor programs, certainly including the much advertised "Fifth Generation Computer Project" have led to negligible commercial technology, and not much more useful research. One possible message from this experience is that the best judge of a commercially valuable innovation is a company that is in a position to exploit it. A consortium of companies, each avoiding giving away any of its best know-how, is hardly likely to pursue a really valuable line of new research. The reason the semiconductor project succeeded is most likely the fact that there was no "new" know-how or technology involved; it was more a matter of replicating and transferring existing know-how from the West. Not that that was necessarily easy; it was, however, unlikely to put any of the participants in a position where their unique or proprietary know-how would be endangered.

IPR and "Hollowing"

At the height of the euphoria of the "bubble" economy, many in Japan observed the trend among US companies – by definition in this case, multinationals – to move their labor-intensive industry off shore. To the Japanese, this represented a mortgage of the US industrial birthright. Manufacturing is what makes a company strong, they say, and the US was getting out of the business. The US economy was becoming "hollow." The US attitude, of course, was that the US was retaining the high value-add elements of business such as innovation, design, and development. Moving the low value-add manufacturing functions to low wage, low tax economies could be seen as good for everyone.

This is certainly debatable, particularly when the low wage economies insist, as a condition for allowing a foreign presence, that the interlopers also transfer a portion of the good stuff. Japan, as we saw, did this with IBM in the sixties and seventies, and everyone else has followed suit. Thus, again taking IBM as an example, IBM Korea added a development function, and IBM has also installed branches of its prestigious Research Division in China and India. In a final irony, however, we see Japan, now a first world economy, exporting its manufacturing to other countries in Asia and Europe, while the government tries hard to motivate its client companies to lead the way into a "knowledge society". Of course, this is an economy in which the low value-add manufacturing jobs are exported, leaving only such high value-add activities as innovation, design and development.

Protection of IPR is a critical factor in the likely success of an intentional hollowing strategy. Even low value-add manufacturing often has high IP content such as tooling, plant layout, testing, and even employee training procedures and manuals. Exposing such assets to dilution or theft, as is common in many Asian and eastern European countries, has to be viewed as an added cost of doing business. If the value received in the form of lower labor costs and taxes (and market access, too) can not compensate for the loss of an intellectual asset, the enterprise should move elsewhere, if at all. It is an unfortunate fact that relatively few corporate managers in the US and Europe are sufficiently aware of

these risks, with the likely eventual outcome that they will create strong competitors who are able to compete because they have access to the Western company's own valuable intellectual assets.

Even where management recognizes that they may be placing an asset at risk when they move it into an emerging economy, they often can be satisfied if their employees and partners in the new country are bound by contracts and licenses. Certainly a contract or license as only as good as the tradition of a "rule of law." Where other laws – such as those relating to intellectual property – are routinely flouted, the contracts are rarely worth the time it takes to negotiate and draft them.

Conclusion

There can be little doubt that in Japan, the "winds of change" are altering the course of intellectual property rights, almost certainly in the direction of stronger rights for creators and owners of intellectual property. In consort with this, those owners are clearly becoming aware of the latent value in their IP assets, particularly their patents, and they are getting encouragement and material support from the government. It is, however, too early to say whether these trends will be sufficient to overcome the huge inertia that any change in the Japanese way of doing business faces.