INTELLECTUAL PROPERTY

The cost of ideas

It is becoming ever more apparent that the patent system isn't working

Intellectual property is the cornerstone of the modern knowledge economy. But one of the main forms of intellectual property, the patent—a temporary monopoly designed to provide an incentive to innovate—is increasingly being found wanting, even as the number of applications soars at patent offices around the world. America's patent system has "become sand rather than lubricant in the wheels of American progress", argue Adam Jaffe and Josh Lerner in a new book, "Innovation and its Discontents: How our broken patent system is endangering innovation and progress and what to do about it" (published by Princeton University Press). The world's patent system remains splintered along national lines, yet the system's defects are felt everywhere.

"Patent offices are under incredible pressure," says Dominique Guellec, the chief economist at the European Patent Office in Munich. Applications at many patent offices have doubled in the past ten years, and the average length of each submission has increased by 50%. The average quantity of work required to examine an application is three times greater than it was a decade ago. "Of course that can't be neutral in terms of quality," says Mr Guellec.

In recent years, the scope of patents has broadened to encompass new technologies, as well as software, and in some instances business methods. Meanwhile, the legal power of patents, once awarded, has increased, and they are more zealously sought. This, combined with an alleged decline in the quality of patents—that is, how accurate their claims are and whether they are truly novel or non-obvious—is deeply troubling, especially as, once awarded, a patent is hard to revoke.

Patently absurd

In America, several controversial business-method patent awards, notably Amazon's one-click payment process, have fuelled the perception that the Patent and Trademark Office (PTO) is under strain. A study by M-CAM, an intellectual-property consultancy, found that over 30% of patents make duplicate claims, raising questions about their validity. America's PTO dismisses the criticism as anecdotal. "We're seeing lots of new industries being born, that is why there are a lot more patent applications," says Mary Critharis of the PTO.

The number of patent applications to the PTO is growing at around 6% a year. The wait for a decision is on average 27 months—and much longer for complex applications in advanced sciences. Last year, the PTO received around 350,000 applications and currently has a backlog of over half a million to review. It is a global concern: foreigners account for around half of all patents granted.

Similar growth is occurring elsewhere, including in countries that previously showed little interest in intellectual property. Applications to China's patent office increased fivefold from 1991 to 2001. As countries such as China, South Korea and India spend more on research and development, they are filing more patents.

The mission creep of America's patent system into more contentious areas is also spreading elsewhere. Later this month, the European Council of Ministers will discuss draft legislation on harmonising policy on computer-implemented innovations. Many small software companies in Europe, as well as "open-source" software developers that make non-proprietary software, oppose the initiative. They fear that it is a first step towards adopting controversial software patents, already awarded in America, which could block different implementations of the same features. Were further proof needed

that this may not be an entirely positive development, look no further than the mighty software monopolist, Microsoft, whose chairman, Bill Gates, has called on employees to increase the number of patents that the company files.

The rising importance of patents has led both to an arms race and a game of bluff. Many firms in the information-technology and life-sciences industries say they have an incentive to obtain as many patents as possible as bargaining chips in litigation. The patents are used to reach a cross-licensing agreement, usually with some cash thrown in, so that both firms can continue to do business. Those firms that lack patents are thus disadvantaged.

Countries increasingly complain to the World Trade Organisation and the United Nations World Intellectual Property Organisation (WIPO) that the patent system discriminates against them. Indeed, WIPO recently adopted a "development agenda" to consider different intellectual-property regimes appropriate to the circumstances of a particular country or region. This was hailed as a boon for reassessing patent protections on drugs and for open-source software. Poor countries have long complained that America is trying to export its tough intellectual-property protections.

The growing debate about America's patents is focused on the process of examining applications and the difficulty of challenging dubious patents. Patent examiners typically know less about an invention than the applicant. Moreover, their workload is far higher for rejecting than granting an application. This creates a perverse incentive for examiners to "dispose" of applications by granting rather than rejecting them, argue Messrs Jaffe and Lerner in their new book. To resolve this, they call for a pre-grant notice period when third parties can come forward with "prior art" that would invalidate the patent.

As for the second problem, legislation introduced into America's Congress last month seeks to make patent-opposition trials easier for challengers by eliminating some legal hurdles. The legislation would also curb the granting of many forms of business-method patents.

As these reforms are debated, the scale and central importance of the patent system are also coming under assault. "The innovation system is broken in that there is too much emphasis on intellectual-property rights," says Suzanne Scotchmer, the author of "Innovation and Incentives" (MIT Press), a book on the role of patents to be published soon. More than ever, she says, inventions that would otherwise go into the public domain because they are funded by taxpayers or charities become "cordoned off" by the patent system. If so, perhaps the patent system not only needs to be repaired, but shrunk?

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INTELLECTUAL PROPERTY

Monopolies of the mind

The world's patent systems need reform so that innovation can be properly rewarded

Patents, said Thomas Jefferson, should draw "a line between the things which are worth to the public the embarrassment of an exclusive patent, and those which are not." As the value that society places on intellectual property has increased, that line has become murkier—and the cause of some embarrassment, too. Around the world, patent offices are being inundated with applications. In many cases, this represents the extraordinary inventiveness that is occurring in new fields such as the internet, genomics and nanotechnology. But another, less-acceptable reason for the flood is that patent offices have been too lax in granting patents, encouraging many firms to rush to patent as many, often dubious, ideas as possible in an effort to erect legal obstacles to competitors. The result has been a series of messy and expensive court battles, and growing doubts

about the effectiveness of patent systems as a spur to innovation, just as their importance should be getting bigger (see article).

In 1998 America introduced so-called "business-method" patents, granting for the first time patent monopolies simply for new ways of doing business, many of which were not so new. This was a mistake. It not only ushered in a wave of new applications, but it is probably inhibiting, rather than encouraging, commercial innovation, which had never received, or needed, legal protection in the past. Europe has not, so far, made the same blunder, but the European Parliament is considering the easing of rules for innovations incorporated in software. This might have a similarly deleterious effect as business-method patents, because many of these have been simply the application of computers to long-established practices. In Japan, firms are winning large numbers of patents with extremely narrow claims, mostly to obfuscate what is new and so to ward off rivals. As more innovation happens in China and India, these problems are likely to spread there as well.

A crying need for discipline

There is an urgent need for patent offices to return to first principles. A patent is a government-granted temporary monopoly (patents in most countries are given about 20 years' protection) intended to reward innovators in exchange for a disclosure by the patent holder of how his invention works, thereby encouraging others to further innovation. The qualifying tests for patents are straightforward—that an idea be useful, novel and not obvious. Unfortunately most patent offices, swamped by applications that can run to thousands of pages and confronted by companies wielding teams of lawyers, are no longer applying these tests strictly or reliably. For example, in America, many experts believe that dubious patents abound, such as the notorious one for a "sealed crustless sandwich". Of the few patents that are re-examined by the Patent and Trademark Office itself, often after complaints from others, most are invalidated or their claims clipped down. The number of duplicate claims among patents is far too high. What happens in America matters globally, since it is the world's leading patent office, approving about 170,000 patents each year, half of which are granted to foreign applicants.

Europe's patent system is also in a mess in another regard: the quilt of national patent offices and languages means that the cost of obtaining a patent for the entire European Union is too high, a burden in particular on smaller firms and individual inventors. The European Patent Office may award a patent, but the patent holder must then file certified translations at national patent offices to receive protection. Negotiations to simplify this have gone on for over a decade without success.

As a start, patent applications should be made public. In most countries they are, but in America this is the case only under certain circumstances, and after 18 months. More openness would encourage rivals to offer the overworked patent office evidence with which to judge whether an application is truly novel and non-obvious. Patent offices also need to collect and publish data about what happens once patents are granted—the rate at which they are challenged and how many are struck down. This would help to measure the quality of the patent system itself, and offer some way of evaluating whether it is working to promote innovation, or to impede it.

But most of all, patent offices need to find ways of applying standards more strictly. This would make patents more difficult to obtain. But that is only right. Patents are, after all, government-enforced monopolies and so, as Jefferson had it, there should be some "embarrassment" (and hesitation) in granting them.