

In Brief

Singapore Plans to Battle 'Cyber Terror'

Singapore is to spend \$23 million over three years to battle online hackers and other forms of "cyber-terrorism" according to a government announcement in February 2005. This is one of the world's most connected countries so the challenge of achieving this objective will be watched by many other countries.

Describing the infrastructure behind the Internet as a "nerve system" in Singapore, Deputy Prime Minister Tony Tan said a new National Cyber-Threat Monitoring Center would maintain round-the-clock detection and analysis of computer virus threats.

"We cannot afford to treat the threats from cyber terrorists, cyber criminals and irresponsible hackers lightly," Tan said in a speech while unveiling an information-technology security "masterplan" in this growingly progressive city-state.

"Infocomm security is as important in protecting Singapore as is physical security at our borders," added Tan, who is also Coordinating Minister for Security and Defense.

Singapore has one of the world's highest Internet penetration rates, with 50–60 percent of its 4.2 million people living in homes wired to the Internet.

This affluent, predominantly ethnic Chinese island also has steadily tightened security since the September 2001 attacks on the United States, from patrols of heavily armed police in busy shopping districts to demonstrate tighter security at border points.

In 2003, Singapore passed strict legislation to allow monitoring of all computer activity and for police to take pre-emptive action to protect state computers from cyber attacks.

Tan said the money would also be used to help businesses tighten security for online financial transactions while guiding them to work with the government in maintaining cyber security.

The Cyber-Threat Monitoring Center will link up with companies that provide anti-virus systems and

governments running similar centers, including the United States and Australia. It is expected to be fully operational by the second half of 2006.

eMobility Platform Launched in Europe

The eMobility Technology Platform, officially launched in March by the European Union, is a public-private partnership to foster wireless research and reinforce Europe's leadership in mobile communications. It has received substantial funding pledges from its members. See <http://www.emobility.eu.org>

eMobility is an EU-wide public-private partnership focusing on European research and development (R&D) efforts and exploiting the future potential of mobile and wireless. The partners have funding for wide-ranging research projects from the EU and major telecoms equipment companies (Nokia, Ericsson, Siemens, Alcatel) and mobile operators (Vodafone, Deutsche Telekom, Telefonica), amounting to a total investment sum of one billion Euros. The partners would like the European Commission to match this investment, giving the platform a total budget of two billion Euros for a period of four years.

The rationale for investing is to ride the next wave of wireless innovation and ensure leadership in mobility in all forms of communication in the EU. What is at stake is a job market of four million people, expected to grow to ten million by 2010. According to the platform, mobile and wireless have an economic impact greater than the Internet, with mobile services currently accounting for three percent of European GDP.

The eMobility platform says that European industry is beginning a second phase of growth in the mobile and wireless sector as mobile applications and services are incorporated into business processes and all aspects of daily life. In recognition of this, Asian countries, such as China and Korea, are making substantial efforts

to overtake Europe in this strategically crucial domain. The USA dominates in the short range wireless technology sector and invests its defense budget in supporting technological advances. A serious investment in advanced applications based on new technology in Europe is now required to maintain and further build the European mobile and wireless sector.

In order to maintain Europe's position in the global market for mobile and wireless systems in the 2010–2015 time horizon, it will be necessary to develop large-scale European approaches to system research and development, and to mobile services and applications in the context of digital convergence. The platform has therefore developed a comprehensive research agenda in the mobile and wireless sector to be conducted in the EU and is currently working on a proposal for a Specific Support Action (SSA) under the Information Societies Technologies theme of the Sixth Framework Program (FP6) as a bridge towards FP7.

E-Commerce Improves Small Business in Japan

A survey of the E-Commerce Adoption and Implementation Rate in small and medium enterprises in Japan, conducted by the Electronic Commerce Promotion Council of Japan (ECOM) in 2004 showed that 35% use E-Commerce in purchasing goods and services and 70% for sales operations. ECOM pointed out when launching the project that “it is essential for small and medium sized corporations to utilize E-Commerce because these enterprises account for 99% of the more than 1.66 million corporations in Japan.” A questionnaire was sent to 4,880 companies to learn their conditions of E-Commerce, with 837 responding.

The adoption rate is defined as the percentage of corporations that have one or more E-Commerce transaction partners among all of the companies that responded. In purchasing, the adoption rate was 35% for purchasing goods and services and 48% for sales operations. This represents a growth in e-purchase and sales of some 4% annually, but the total number of transactions is 10% lower than in recent years.

Although there are a substantial number of small and medium enterprises utilizing E-Commerce, many of these companies continue to use conventional business documents and communications methods, such as pa-

per records, voice telephone calls, and faxes with many trading partners. ECOM sees this as reducing the full advantages of introducing E-Commerce.

Some 90% of the respondents recognize the need for adopting E-Commerce but presented an array of reasons for introducing. Results of the survey found the following:

Already promoting or plan to promote E-Commerce	23%
Need to digitize our transactions to develop business	38%
E-Commerce to be adopted if operations will be streamlined and made more efficient	32%
Our trading partners have asked us to implement E-Commerce	16%
Using faxing is enough for our business	6%
No need for E-Commerce	3%
E-Commerce not known to our company	4%

The survey identified a number of problems and challenges facing small and medium sized enterprises considering or introducing E-Commerce. Among the reasons given for slow adoption is that paper forms are still widely used (58%); concern over the cost of E-Commerce operations (36%); professional knowledge required for building E-Commerce systems (31%); satisfactory security systems cannot be built (31%); personnel not trained sufficiently (31%); laws and guidelines for E-Commerce not prepared well (17%); products and commodity codes not arranged well (9%), and formats, reference codes not well arranged (7%).

Additional information on ECOM and its projects are available at www.ecom.jp.

Global DSL Subscribers Exceed 100 Million

A study prepared by the DSL Forum in February 2005 reported the number of DSL subscribers worldwide has exceeded 100 million. Growth of DSL in 2004 was about 60%, creating new broadband markets in several countries. Among the fastest growing markets are Turkey, now approaching half a million DSL subscribers, a 725% increase in 2004, the Czech Repub-

lic 589% and Ireland 351%. Mexico, Malaysia, New Zealand, and Lithuania all experienced DSL subscriber growth of 100% or more.

Established DSL markets also evidenced strong growth in subscribers. China, the world's largest DSL population, saw a DSL increase in 2004 of more than 8.5 million. In the United States, where DSL does not yet have a large market presence, there was growth of 3.93 million DSL subscribers.

Europe showed the most impressive growth, both in well established and emerging markets. Today, European Union countries are the biggest DSL users. This is shown by France with 3.25 million DSL subscribers added in 2004, the UK growing by 2.8 million, Italy by 1.73 million and Germany by 1.4 million.

Although ADSL continues to dominate current DSL connectivity, deployment increasingly includes newer DSL options. ADSL2plus is rapidly growing in Sweden, Norway and France with trials beginning in the US and services to be on-stream in the Netherlands by the end of 2005. VDSL had at least five million connections by the end of 2004, most in South Korea, Japan and China. VDSL2, delivering 100 Mbps over a single telephone line, may provide new impetus when that is standardized, expected in mid-2005. In addition, there is an increase in the rollout of symmetric DSL services, with 1.2 million subscribers worldwide by the end of 2004.

Devastating Attack Predicted in the Net's Near Future

At least one devastating attack on the Internet can be expected in the next 10 years, an overwhelming majority of technology experts and analysts polled by a major US research group.

According to the Pew Internet & American Life Project on the Future of the Internet, which polled over 1,200 tech experts and social analysts, 66 percent of the experts agreed with the prediction that a large-scale, damaging attack on the Internet, or an assault on the nation's power grid will occur by 2014. The full report can be downloaded from the Pew website: http://www.pewinternet.org/pdfs/PIP_Future_of_Internet.pdf.

"Given the current terrorist context we live in and the interest in hackers to show off their skills this is inevitable, as is the unfortunate human quality to only fix the problem once it has occurred," wrote one of the experts.

The survey, which was conducted in conjunction with North Carolina-based Elon University, laid out a list of 10-year predictions and asked the experts to give thumbs up or thumbs down.

"We wrote statements that were a mix of positive and negative outcomes," said Susannah Fox, the associate director at Pew and a co-author of the survey. "We're not necessarily saying they'll come true. In fact, we have no idea. But we came up with predictive statements that we wanted the experts to comment on." In some ways, Fox added, the results are a reflection of the rationality that's returned to the Internet since the dot-com disaster around the turn of the century.

"A lot of the predictions made about the future of the Internet in 1990, 91, 92, and 94 came true," she said. "But then in the 1995 through 2000 time frame, people were just saying crazy things." The consensus of the experts today – when there is consensus one way or the other, agreement or disagreement – is more realistic, she observed, more like the opening days of the Internet.

Once past the agreement that the network infrastructure is vulnerable to attack, for instance, the experts' second-most agreed upon prediction was that as computing devices become embedded in everything from clothes and cars to phones and pharmaceutical packaging, governments and businesses will use them to snoop on citizens and consumers.

Fifty-nine percent of the experts polled gave this prediction the thumbs up, although some see government's part as secondary. "It seems to me that most of this surveillance will be private in nature," wrote Susan Crawford, a law professor and policy fellow with the Center for Democracy & Technology, in her response to the survey question. "I agree there will be lots of surveillance, but I don't see it being turned over to government authorities. Instead, it will be used to market to us in ever-more-personalized ways."

Not every predictive statement got the okay from the experts, however. One that said online medical resources will substantially improve the problems facing health care was shot down by 41 percent of those surveyed.

"I was really surprised at how caustic the health experts were on the impact of the Internet," said Fox. "Some called their industry 'intractable,' and many

don't see health care changing much for the better because of the information explosion."

In the end, Fox was impressed with the guarded optimism of the experts about the future of the Internet. "Early predictions were full of hope and the possibility that the technology would bring people together," she said. "There was still a sense of that in 2004."

Intellectual Property Vital to Barbados's Future

Intellectual property (IP) is recognized as a vital part of global development which Barbados economic policy officials recognize and are concerned about. This is the essence of a speech and comments by the Barbados Minister of Industry and International Business, Dale Marshall. IP will be incorporated into the country's growth thrust, especially because the culture industry is a significant engine of growth.

A problem facing the government is there is presently no central repository for IP information. Consequently there is no way of knowing where and how much IP the country is generating. Another concern is that with the event of the Caribbean Single Market Economy, companies will be moving seamlessly across borders, bringing their logos, trademarks and other IP, the risk being that outside their country or origin, many persons may not take adequate care of their valuable IP resources.

"The increasingly international scale on which businesses operate and trade," Minister Marshall observed, "has led to a growing tension in the traditional nature of most legislation, including that governing intellectual property rights. This tendency is compounded by the development of e-Commerce which permits more companies to operate globally. In addition, important economic, social, political and technological developments in the past few years have had a fundamental impact on how intellectual property is created, exploited and traded. This has put pressure on existing systems of intellectual property to adapt to accommodate these changes," Marshall said.

Roadmap of Current and Emerging Intellectual Property Issues for Business

The important economic, social, political and technological developments over the past few years have had a fundamental impact on how intellectual property (IP) is created, exploited and used. IP in this digital age has taken on new importance and there are major changes in how it is created, exploited and used. At the same time, the International Chamber of Commerce (ICC) is concerned that: "IP thefts are rapidly escalating and debate continues to rage over the role and scope of the patent and copyright system," the ICC reports in the new sixth edition of its Roadmap of Current and Emerging Intellectual Property Issues for Business. In a preface to the report, the ICC indicates it was contributed to by 140 IP experts and "is designed to give business leaders and policymakers a deeper understanding of the pertinent issues of IP today." The publication may be accessed on the ICC website at www.iccwbo.org/iproadmap.

The roadmap focuses on current and emerging issues relating to specific IPR. These are patents, trademarks, design, copyright, geographical indicators, plant variety rights, trade secrets and new forms of intellectual property and technologies. Several issues common to various IPR are examined, including enforcement problems, exhaustion of IPR, valuation of IPR, and diversion of IP registration fees. Further, the report considers interaction between IP and other policy areas, such as proper use of IPR for economic development, environment and biological diversity, healthcare, competition policy, information society, use of open source software and data privacy.

The following is a section of the report reviewing developments having an impact on IP protection.

The Globalization of the Economy

The increasingly international scale on which businesses operate and trade has led to a growing tension with the traditionally territorial nature of most legislation, including that governing intellectual property rights. This tendency is exacerbated by the development of electronic commerce which allows more com-

panies to operate internationally. Issues concerning the applicable law and jurisdiction with respect to intellectual property transactions and infringements will thus have to be studied in a multidisciplinary context. The expansion of businesses into a growing number of markets has also made it prohibitively expensive, and often impossible in practice, to obtain and enforce intellectual property rights in all the countries where infringing or counterfeit goods may be manufactured and widely sold.

These factors have increased the pressure to harmonize intellectual property norms internationally. Harmonization through treaties date from the Paris Convention (1883) through to the WTO TRIPS agreement – which linked intellectual property rights to the international trading system and its sanctions mechanism – and more recently the WIPO Copyright Treaties. The desire to accelerate the harmonization process has led to more rapid forms of norm-setting which have become important forces for harmonization. Bilateral trade agreements, actively pursued by the US, and to a lesser extent the EU, often set intellectual property standards higher than those required by multilateral agreements such as TRIPS. Soft law instruments, such as guidelines or recommendations, are used to define new norms which can then be made binding through integration into treaties, adoption into national law or by reference in bilateral trade agreements.

As businesses operate in more countries, control over the distribution of their products in different markets becomes an increasingly important issue. The scope of application of the concept of exhaustion of rights determines whether the holder of an intellectual property right should be allowed to control the distribution nationally, regionally or internationally of (genuine) goods which have not been put on the market by the holder or with his consent. The great majority of ICC members believe that, in the absence of a true single global market, a regime of international exhaustion would on balance be more harmful than beneficial to international trade and investment, and to innovation.

Businesses have a legitimate interest – for reasons relating to commercial strategy, quality control, brand reputation, safety, etc. – in controlling the distribution of their goods across different markets to ensure that products tailored for one market are not sold in another. There are also arguments that consumers would not be better off in terms of availability or prices of goods under a regime of international exhaustion.

The authorities both in the European Union and in the USA are now actively reviewing the current pol-

icy "balance" between competition law and intellectual property law. Issues are being raised by the US authorities that are not being raised by the authorities in Europe, so that divergences may arise which will affect companies operating globally.

The Development of New Technologies

The commercial application of new technologies – especially digital and communication technologies and biotechnology – has led not only to the development of new types of products and services, but also to new forms of distribution and methods of infringement. New technologies and business players are emerging so fast in these fields that unless traditional business, and governmental and other organizations dealing with intellectual property rights take note and respond quickly, they will be overtaken by developments.

Information and telecommunication technologies (ICT) link a multifaceted and diverse world – the information society. However, while infrastructure and information are its basic building blocks, knowledge, context, content and reflection are indispensable to foster understanding and make communication intelligible. Humans within the information society will thus continue to require encouragement and promotion of innovation and creativity. The intellectual property system lets the market reward the creation, production and dissemination of content, and is a more desirable alternative to state "patronage" or subsidies and the concomitant state influence and risk of censorship.

While intellectual property norms are still largely national or regional, ICTS are inherently global. Thus, more than ever, the chain of national intellectual property laws will only be as strong as its weakest link, and the ability to meaningfully enforce rights will be crucial. This will accentuate the need for increased international cooperation. Voluntary codes of conduct, guidelines and contracts may well present a way to supplement national legislation in this endeavor.

The world is witnessing a revolution in biotechnology that offers the promise of significant improvements in quality of life and economic growth in the twenty-first century: in healthcare and medicine, sustainable industrial processes, agriculture, food, and the environment.

These advances are made possible by an innovative, enabling set of biotechnologies that are transforming what is known about the world. The realization of this promise, however, depends critically on strong and effective intellectual property rights to stimulate

the investment of resources needed to research and develop these innovations, to diffuse the new technologies widely, and to provide a market-oriented framework for the exchange of rights.

The increasing commercial application of new life science technologies, such as biotechnology, leads not only to the development of new types of products and services, but also to new forms of distribution and diffusion of technology and new types of public-private partnerships for achieving societal goals. Business needs to be particularly mindful of the intellectual property policy challenges presented by the growing convergence of biotechnology with information technologies and other new technologies in which information, new tools and new methods are critical to innovation.

The world is witnessing the emergence of a new field of technology called nanotechnology. "The field of nanotechnology" is essentially a catch-all phrase for various new technologies that focus on developing devices, systems, materials, biologics and other structures at the nano, or billionth of a meter, level. These fields bring together a multidisciplinary team of engineers, biologists, physicists and/or chemists to create new nano-materials for constructing miniature devices or systems of an electrical, material science or even biological "nature".

The potential benefits of capturing the full value of such new developments are enormous. This field holds the promise of curing diseases through the manipulation of genes at the nano level using nano engineering systems, or of building new miniature computers capable of providing the processing ability of today's systems at the nano level.

One difficulty in capturing its full potential is that some of the materials and systems that will be developed, while highly miniaturized, will provide functions that already exist in today's materials and systems. Thus the challenge to the patent system will be to provide for adequate and balanced protection in this new emerging field. This will be absolutely critical in order to promote the investments that will be needed to bring these multidisciplinary technologies to the marketplace.

The emergence of other new technologies in the future will also have implications for intellectual property protection which may go beyond the issues being discussed today.

Economic Importance of Non-Technological Business Innovations

With the growth of service industries, new types of intellectual innovations are gaining in economic im-

portance and companies look towards the intellectual property system to protect these. However, some of the new forms of intellectual property do not fall squarely within existing systems of protection, and the latter have to be adapted, or new rights created, to accommodate these new innovations.

Until now, solutions have been found either by creating new, specific *sui generis* types of rights or through a broader interpretation of what can be protected under traditional intellectual property rights. The protection of databases, as enacted in the European Union, is an example of the first approach. The availability of patent protection for computer-related inventions, as adopted in the USA and Japan, is an example of the second approach.

Commercial interest in plant and animal species in industrializing countries, and in traditional cultural expressions and medicinal remedies have raised questions of ownership of such resources previously assumed to be in the public domain. Intellectual property rights are being used to define proprietorship of these resources, sometimes inappropriately. Collective ownership has been claimed by some communities over such resources and it remains to be seen whether the intellectual property system is appropriate for such situations.

The Politicization of Intellectual Property Issues

Long considered a technical issue, intellectual property policy is now established in the political arena and is often held up to public scrutiny, obliging its proponents to justify each element of its scope and even its *raison d'être*. Policy makers have to constantly strive to maintain the delicate balance necessary to satisfy the needs of both the creator and the user, so that the system benefits society as a whole.

This politicization of the intellectual property debate is due in part to the increasing economic importance of intellectual property, which has made it an important issue in trade relations between states.

Another factor is the inclusion of a number of intellectual property related issues in the WTO Doha Development Agenda. Among these issues are geographical indications, the relationship between TRIPS and the Convention on Biological Diversity (CBD), and the transfer of technology to least-developed countries. While not part of the Doha Development Round, the decision taken by the WTO General Council on 30 August 2003, in light of the statement made by the Council's chairman at the time of the adoption of the decision, has gone a long way towards resolving the con-

tentious debate relating to the introduction of crossborder compulsory licensing in the pharmaceutical sector in order to help poor countries obtain access to critical medicines. The decision and the statement, taken together, provide the proper balance between the conditions for such crossborder compulsory licenses and the interests of the holders of patent rights, while recognizing the importance of intellectual property protection for the development of new medicines.

Yet another factor has been the introduction of intellectual property concepts in communities and countries previously unfamiliar with them, and misunderstandings over the use of intellectual property rights in connection with culturally and socially sensitive material previously assumed to be in the public domain. Companies have turned to new sources – such as genetic material, traditional remedies, little-known plants and animal species – in their search for new products. This has provoked emotional debates over the concept of ownership of and sharing of any benefits flowing from these resources and the products derived from them.

A tension between the commercial interests of the proprietor of the intellectual property and the interests of the public in sensitive areas such as healthcare, ethics, development, the protection of the environment, competition policy, privacy and consumer protection has also been perceived in certain communities. Indeed, a further factor of increasing significance and complexity is that a number of developing countries feel that the intellectual property system, and particularly the patent system, does not strike the right balance between the interests of developing countries and those of developed countries, and that this needs to be rectified. This is especially manifest in WIPO, where a proposal on a Development Agenda for WIPO was presented to the General Assembly in September/October 2004. This thinking has led to the WIPO negotiations on a Substantive Patent Law Treaty, SPLT, being stalled because of disagreement as to whether exceptions relating to health and the environment should be built into the treaty, and because of a view that such a treaty would deprive developing countries of flexibilities available under the TRIPS Agreement.

This increasing politicization of intellectual property issues means that business must also focus on developing effective communications strategies concerning intellectual property issues, and on encouraging education about the importance of intellectual property for society. This is essential if it is to garner the support of the public and ensure that gains made to ensure strong and effective protection are not whittled away due to

political opposition. Public support for intellectual property rights would also greatly alleviate enforcement problems made more acute by new technologies and globalization.

Changes in the Ways Businesses Operate

Intellectual property has long been used by businesses as a basis for producing and marketing goods and services. However, there is growing recognition that it is a valuable asset in itself that can bring in revenue through licensing, improve a company's balance sheet, increase stock value, or be used as collateral for loans or other financing. While valuation techniques have been developed, it would be desirable to ensure a degree of international coherence in this field.

Product life cycles in many industries (e.g. the information technology sector) are shortening. The length of time and amount of investment required to obtain intellectual property rights, especially patents, can be disproportionate to the effective life of the product. Requirements such as the need to mark products with "patent pending" also become impracticable when products have short life cycles and use many different technologies subject to different patents, especially when these products are miniaturized.

In the network economy, the question arises as to how the interests of various parties can best be balanced. These parties include infrastructure builders, system developers, service providers, information providers, etc., who are increasingly interdependent. There are many parties whose activities seem to increasingly overlap, and this makes it important to consider each party's rights and responsibilities.

With modern technology, it is possible that several different technological solutions and licenses are required to enter a particular market. At the same time, these technologies, protected by patents or other intellectual property rights, are usually standards (or at least de facto standards) in the field. One of the most typical examples is the Internet, and technologies and services associated with it. The convergence of telecommunications will bring even more challenges to this field, since the traditional borderlines between computer networks and telephone networks are disappearing.

When new standards are introduced, the following issues can arise:

- Access to markets: the holder of a standard-related patent may be in a position to prevent others from entering the market by refusing to license its technology.

- Conditions of access: lack of transparency in royalty levels for standards and de facto standards makes it difficult for other players in the field to calculate the cost of entry into the market.
- How intellectual property rights are used when choosing standards from different technologies: it is increasingly important to agree on common standards, but to what extent and how can intellectual property rights apply here?

The complexity of products, specialization and re-organization of production in order to benefit from economies of scale are leading to increasingly decentralized production. Outsourcing, cooperation and collaboration become more important. The partners involved are therefore often separate legal entities in different countries. Adequate protection of intellectual

property is crucial to enable the free exchange of R&D results, creativity and inventiveness among such independent partners in different jurisdictions.

Such protection is of special importance to small research companies specialized in the development of new technologies (frequent in the biotech industry) as well as suppliers in developing countries (e.g. software companies in India).

The lack of appropriate intellectual property rights can tempt enterprises to seek protection by other means. On the one hand, these may be of doubtful validity and difficult to enforce; on the other, they may hamper the freedom of users and inhibit desirable competition. Alternatively, technical means of market control may be tried.