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Something really new: a practical, implementable approach to innovation

Denis Hauptly
Vice President and Chief Innovation Officer
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July 2008

Business today requires a practical approach to innovation. If you want strong sustainable growth and real competitive advantage, you need something that brings value to customers by making their life easier, freeing up their time, or reducing their costs.

There are two things that everyone knows are absolutely true about business today:

1. You must innovate
2. Innovation begins with understanding your customers

Okay! Now let's go execute on that plan!

Except, of course, you can not execute on that plan. You have to go a bit further than that to have a practical, implementable approach to innovation. I will try to set out below some of the basic outlines of such a plan. This is not a silver bullet but I believe it will improve your innovation efforts quickly and measurably, and encourage your organization to go further than you thought possible.

Let us begin with innovation itself. It is not novelty. Hula Hoops, Pet Rocks etc take off once a generation and they are gone in two years. You can make a buck on fads – and if you keep betting on the lottery you may also eventually win. But if you want strong sustainable growth and real competitive advantage, you need something that brings value to customers.

Beauty and utility

There are really two types of things that people value by paying for them: Beauty and Utility. Unless you are in the home décor or entertainment business, what you are really selling at the end of the day is Utility. You can dress it up as much as you want, but in the final analysis your customer is saying "Will this make my life easier, or free up time, or reduce my costs?"

So, Novelty's twin brother "Cool" is out as well. For the merely cool does not make life simpler. It only provides a moment of awe. That's not a long-term value proposition.

Our focus, then, is on the useful, and to discover the useful we must go through one tricky moment. We have to distinguish between our product's Function and our customer's Task. Mere philosophy, you say? Not so. It is the heart of the matter.

Let's look at faucets

How many do you have in your home? Count the laundry room, the yard, the one at the bottom of the hot water heater and so forth. You may have 10 or more. Faucets are 4000 years old. They work very well after all those millennia of design improvement. Or do they?

Well, from the perspective of the company that makes and sells faucets, they are near perfection. Turn a handle and the water flows. Washers used to be a major problem, but not so much anymore. The design now includes the ability to blend hot and cold water with one handle and use that same handle to adjust the temperature. Who could ask for more?

The customer could. Because the customer assumes that the function is fine. It's a given. The customer is focused on Task. The customer's goal is not to make water flow at a given temperature. His or her goal is to wash their hands (or fill a pot, or water a geranium). And faucets do not always work so well from that perspective.

When you wash your hands your task is to get them clean (duh!). So you put your dirty hands on the handle, play around for the right temperature, wash your hands and then touch the dirty handle again. A good faucet would make that task simpler and actually achieve the goal of clean hands. Doctors use a foot pedal with a preset temperature. That saves several steps and makes the cleaning more effective as well.

So here are two important points:

1. Understand the customer's task, not your function.
2. Help the customer complete that task with less work and/or lower cost.

Count

If you have the first point right, then the next point is even simpler: Count. Walk through your customer's task and write down each step. A step has one verb and one noun. Here's an example for dialing a phone:

1. Obtain number
2. Take phone
3. Enter number
4. Press "dial"



Now, take those steps and reduce them.

1. Take phone
2. Say "Call John"

Every step you take out reduces time and/or expense.

There's much more to this. Importantly there is the subject of linking services (for instance, your hotel provides you with your boarding pass for the next day). But space is limited so I will leave you with one final suggestion:

Never accept the notion that a product is a commodity and all innovation is over. Bread is the oldest product on Earth, going back over 7000 years. But sliced bread didn't happen until 1928. Water has been around forever. But the product "Fortified water" dates back to the late 1990's. Sales last year in that category exceeded two billion dollars.

There is always room for innovation.

About the author

Denis Hauptly is Vice President and Chief Innovation Officer of Thomson Reuters Global Resources. His new book, *Something Really New: Three Simple Steps to Creating Truly Innovative Products*, examines the process of identifying product innovation potential.

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Made in China – a glimpse into the future of patent information

Bob Stembridge
Thomson Reuters
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Something's going on in China. From humble beginnings, an inexorable momentum of innovation is building. If current trends continue within the major patenting countries of the world, China is set to dominate the patent information landscape. This article takes a look at current patent trends and speculates about how the world of patent information will look in five years time.

Looking backwards

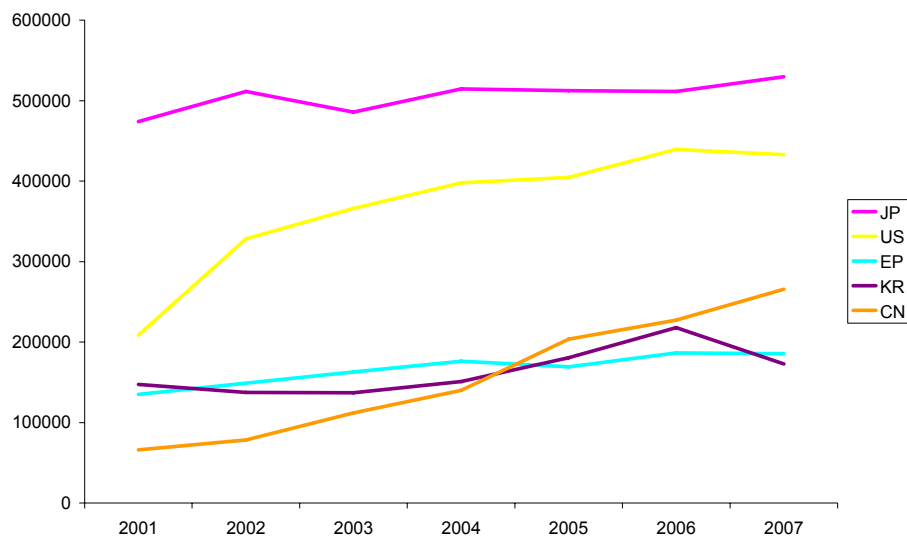
An analysis of patent volumes from five of the major patenting regions in the world shows a clear picture over the last five years: inventions from China have been growing at a faster rate than any other region and that growth looks set to continue into the future.

There are several attributes that can be measured to identify and track innovation trends in a particular region:

- **Total volume of patents:** This gives a measure of the total patenting activity in a region which involves two aspects – those inventions patented first in a region (basics) and those other inventions for which protection is sought to manufacture, use or sell the invention or products in the region (equivalents). The proportion of basics to equivalents is broadly an indication of the ratio of inventiveness of a region compared to how attractive it is perceived to be as a market by both homegrown and external industry.
- **The volume of basics:** This gives a clearer measure of home grown innovation by providing a measure of how many inventions are patented first in the region.
- **The volume of patents claiming priority in the region:** This is the clearest measure of innovation originating from a region. Under standard patent convention, an applicant filing for patent protection in one country has a further twelve months in which to apply for protection of that invention in other countries, while still being able to claim the original filing date (important for establishing novelty). The initial filing country will most often be the country in which the invention was made and therefore this country will be identified as the “priority” country. Analysis of the priority country therefore provides a close measure of innovation from that country.

Using data from *Derwent World Patents Index*[®], the trends in patenting according to these measures are given for five key patenting regions: Japan (JP), United States (US), Korea (KR), China (CN) and Europe (EP).

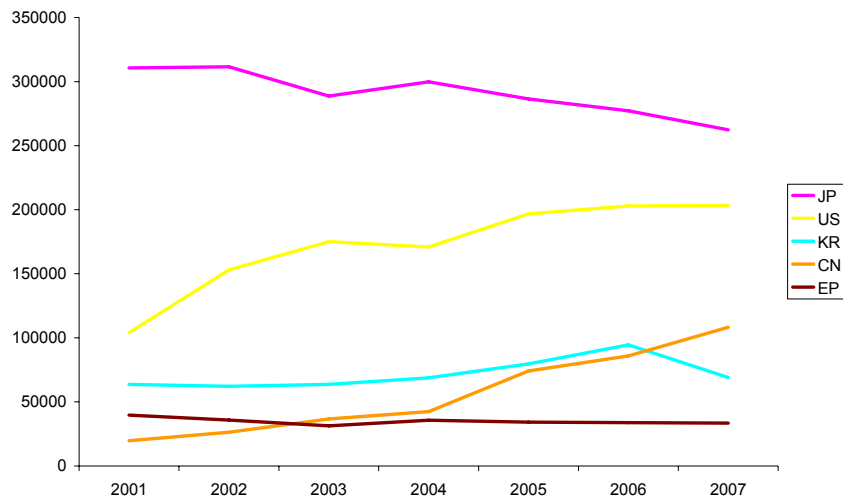
Fig 1: Total patent volumes 2001 to 2007



Japan has the highest total patent volumes year on year over the period 2001-2007, but is being caught up by the US¹. Europe and Korea have similar volumes and growth trends. The striking difference amongst these regions is China – from humble beginnings, it is experiencing the most rapid growth in total patent volumes which looks set to continue into the future.

¹ The large growth in volume of US patents from 2001-2002 may be explained by a change in US law at this time allowing publication of patent applications 18 months after filing where previously publication only occurred on grant of a patent. A proportion only of applications proceed to grant – those that were not granted would hitherto have been invisible.

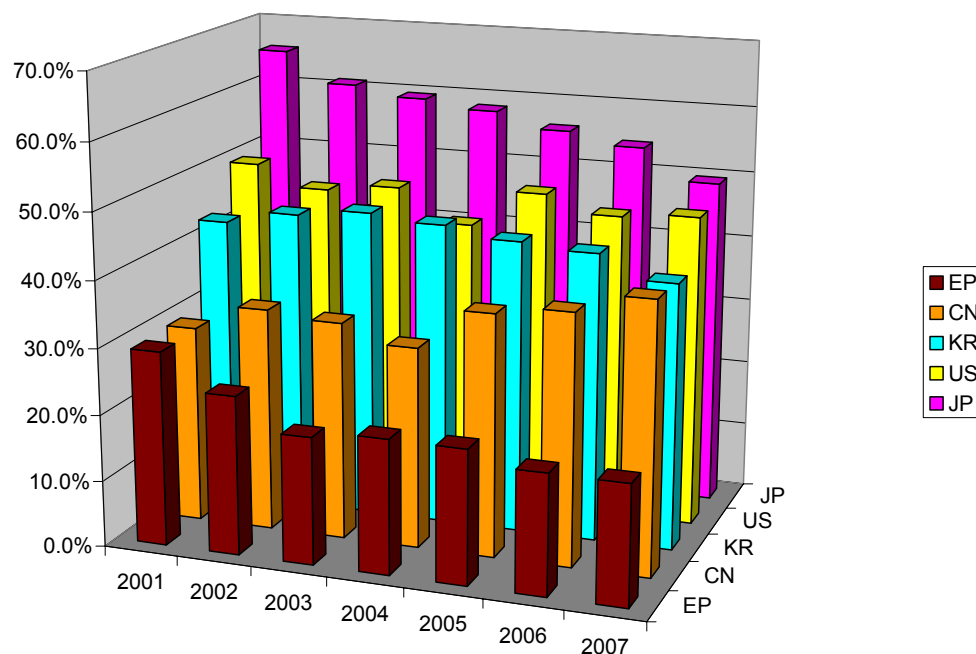
Fig 2: Basic patent volumes 2001 to 2007



Overall volumes for basics are lower than the total volumes above, although still numbering hundreds of thousand of inventions each year. Volumes for Japan although highest overall are slowly reducing. US once again has growth in volumes that are steadily approaching and set to surpass those of Japan going forwards. Volumes of basics for Korea are higher than for Europe. Once again, we see China exhibit strong growth moving from last position in this group to third over the period surpassing both Europe and Korea.

The proportion of basics to total patent volumes indicates patenting practice within the region – the higher the proportion, broadly the more filings by domestic concerns compared to external enterprises. The comparison is given here:

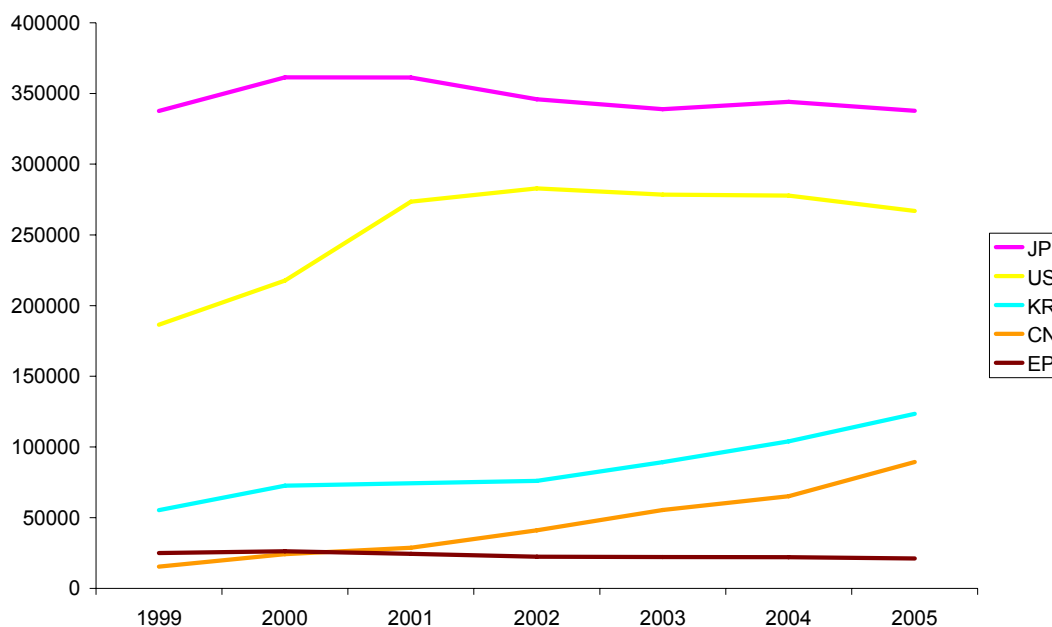
Fig 3: Proportion of basics to total patent volumes 2001 to 2007



Japan shows a high proportion of basics to total patents, indicating a predominance of filings by domestic concerns. This shows a marked shift over time with basics forming just under 50 per cent of the total Japanese patents in 2007 compared to around 65 per cent in 2001.

By contrast, the proportion of basics in China is growing steadily from under 30 per cent in 2001 to just over 40 per cent in 2007. This indicates a growth in filing by domestic concerns compared to external enterprises.

Fig 4: Priority country volumes 1999 to 2005



The clearest measure of innovation within a region is given by looking at priority country information for inventions. This gives the closest link to the country of origin of the invention. Under patent convention, patent applications are published 18 months after priority filing. For this reason, analysis of priority information is time shifted to 18 months earlier (or two years in round numbers). Hence priority country volumes for the period 1999-2005 are given.

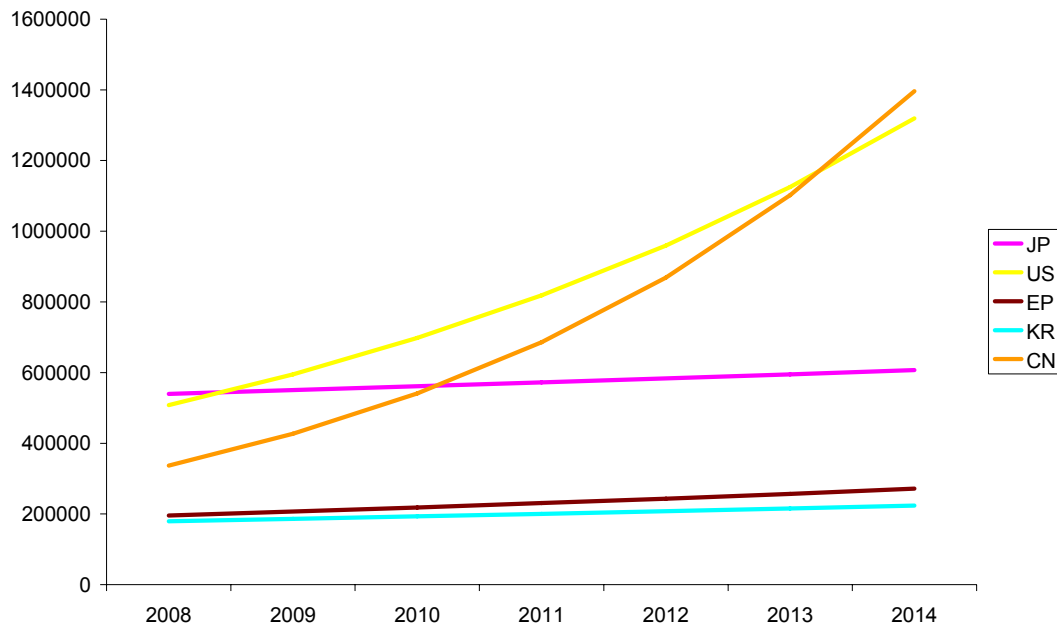
Similar trends are observed again in that Japan has highest volumes, which are slowly decreasing; US has increased in volume to approach that of Japan, and China shows strong growth again from a small base. Interestingly, Korea shows somewhat stronger growth in this analysis compared to total volumes or basic volumes.

Looking forwards

Given the trends observed here, it is impossible to resist a bit of crystal-ball gazing and to speculate about which countries will occupy which positions in the not too distant future. Although strictly a mathematical exercise, it is interesting to observe the predictions on this basis.

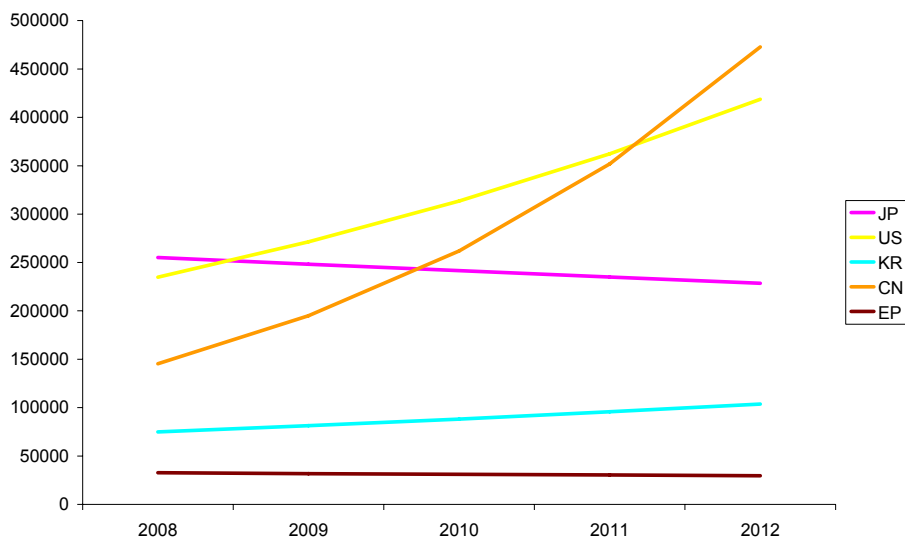
Looking at total patent volumes, we can see that the US is set to surpass Japan in 2009. China is set to surpass firstly Japan in 2011, and then the US in 2014, to take top slot followed by the US in second place, Japan by then having slipped to third place.

Fig 5: Projected total patent volumes



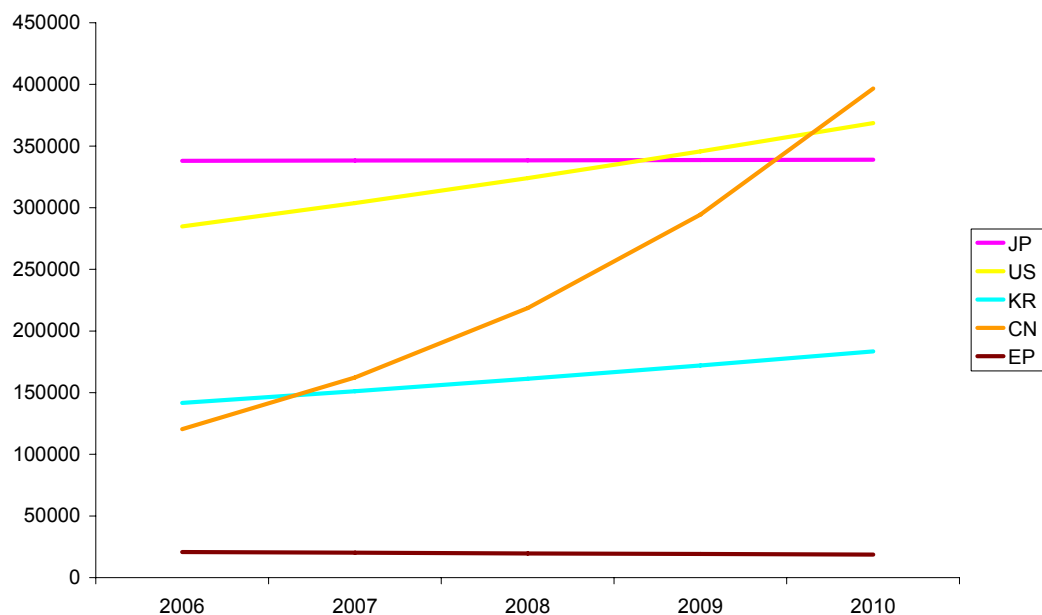
The predictions from looking at volumes of basic patents projected into the future are broadly similar although the timescale is somewhat shorter. Again, US is set to overtake Japan in 2009, but here China surpasses first Japan again a year earlier in 2010, and then the US two years earlier in 2012.

Fig 6: Projected volumes of basic patents



Finally, looking at priority information (and remembering that this is time-shifted by two years so that we should add two years to the dates given in the chart), we see a similar pattern with the US passing Japan in 2011 (2009+2) and China (having overtaken Korea already) going on to pass both Japan and the US to secure top slot in 2012 (2010+2).

Fig 7: Projected numbers of priority patent applications



Conclusion

Although of course these predictions are just mathematical projections, the inescapable fact is that Chinese patents are here to stay in a big way and will continue to grow in importance going into the future. How the information industry, both from the information provider's and the patent information professional's points of view, will address the challenge of vast volumes of non-Roman character patent information in the future is the subject of keen debate and much activity right now.

Using bibliometrics: A guide to evaluating research performance with citation data

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Until relatively recently, peer review was the main route by which science policymakers and research funders made policy decisions about science. However this is now being combined with bibliometrics to provide solid, objective information that impact resources, careers and future directions.

A library faced with collection decisions, a foundation making funding choices, or a government office weighing national research needs — all must rely on expert analysis of scientific research performance. Traditional peer review processes have now been enhanced by the application of bibliometrics.

Quantitative analysis of research performance offers certain advantages in gathering the objective information necessary for decision-making:

- Quantitative analysis of research is global in perspective, offering a top-down review that puts the work in context, complementing the local perspective of peer review.
- Quantitative research analysis provides data on all activity in an area, summaries of these data, and a comprehensive perspective on activity and achievements.
- Weighted quantitative measures, such as papers per researcher or citations per paper, remove characteristics, such as the place of production or past

A new white paper from Thomson Reuters discusses in detail the importance of selecting appropriate data and analysis methods to match the purpose of the research evaluation, and offers a simple guide to Thomson Reuters evaluative products and services can help you dig deeper into data.

Using Bibliometrics: A Guide to Evaluating Research Performance with Citation Data: download the free white paper at <http://scientific.thomsonreuters.com/forms/bibliometrics/>

A regional perspective on science

July 2008

Regional journals typically approach subjects from a local perspective, or focus on particular topics of regional interest. 700 new regional journals have now been added to Web of Science®, making material that was previously only available on a limited basis through a few international journals accessible in far greater depth to the entire Web of Science community.

For more than two years, Thomson Reuters has reviewed thousands of regional journals in all areas of science, social science and arts and humanities. All journals added to the *Web of Science* go through a rigorous selection process, and the selection criteria for a regional journal are fundamentally the same as for an international journal, except the importance of the regional journal is measured in terms of the specificity of its content rather than in its citation impact.

To meet stringent criteria for selection, regional journals must be published on time, have English-language bibliographic information (title, abstract, keywords), and cited references must be in the Roman alphabet. The complete integration of these new journals builds a bridge between significant regional studies and the global research community — increasing the visibility of topics of regional concern and enhancing the comprehensiveness and reach of *ISI Web of KnowledgeSM*.

The added journals cover the subject areas of Arts and Humanities, Agriculture Biology & Environmental Sciences, Chemistry, Engineering, Computing & Technology, Life Sciences, Physics, Chemistry, and Earth Sciences, and Social and Behavioral Science. The geographic distribution of these journals is:

- 199 from Asia Pacific
- 364 from the European Union
- 80 from Latin America
- 50 from the Middle East and Africa
- 7 from North America

Regional Content Expansion in Web of Science: Opening Borders to Exploration. Essay by Jim Testa, Director of Editorial Development

(http://isiwebofknowledge.com/currentuser_wokhome/wos_jnl_expansion/regionalcontentessay/)

Benchmarking, ranking and evaluating university performance

July 2008

To better demonstrate the success of their world-class research programs, administrators at the University of Toronto needed access to a new set of evaluative metrics to affirm the university's wide-ranging influence and tremendous research productivity. With University Science Indicators, the University of Toronto can quantify its research achievements and prove its rank among leading research-intensive universities – in Canada and beyond.

Demonstrating success is a key component of the University of Toronto's efforts to attract and retain resources, recruit quality faculty and students, and maintain partnerships with the government and other research facilities. But even for such an esteemed research organization, demonstrating its achievements can be challenging.

Before 2002, the university had two primary means of evaluating its research performance: the input measure of research funding and the output measure of honors awarded to faculty. Citation analysis, a widely used method of evaluating influence in the research community, had not been used, and quantifying research influence and performance was not a regular part of their annual evaluations.

In 2002, under new leadership, the university was determined to find a new way to quantify the influence and impact of its research. It turned to *University Science Indicators*- an easy-to-use database of research performance measures for universities and research institutions – to help demonstrate the quality and influence of its research. The university now performs an annual study of how it ranks in both citations and publications for its key disciplinary groups.

Benchmarking, ranking and evaluating university performance at the University of Toronto: read the full case study at <http://scientific.thomsonreuters.com/media/newsletterpdfs/8462431/usi.pdf>

Fast-tracking IP on the Japanese Highway and beyond

Professor Ruth Taplin

July 2008

Measures to increase the efficiency of patenting in Japan began in earnest with former Prime Minister Koizumi, who established the concept of a nation built on intellectual property. In addition to special measures to help SMEs become more competitive, one of the newest developments is cross-border IP highways with other major patent offices.

Former Prime Minister Koizumi established the concept of a nation built on intellectual property (IP) in his policy speech to the 154th Session of the Diet in 2002. He was the first incumbent Prime Minister to champion IP in this way, and Japanese IP practices have been changing rapidly ever since. One of the newest innovations is the concept of a cross-border IP highway, aided by the streamlining of patent applications and the fast tracking of them during the patent examination system.

These changes are enabling some of the very innovative small scale biotech sectors in Japan to patent new products more quickly to protect them from their rivals, especially in the cases of medicinal applications of newly found plants. Japan is also being affected by legally binding global agreements that are being developed to set the standard for how all drug IP will be protected.

The rise in fast tracking of IP applications

In 2004, a bill to expedite patent examination processes was introduced into the Diet session. Parallel to this bill, and to the IP drive being promoted by the Koizumi government, were the practical measures being employed by the Japan Patent office (JPO) to quicken the pace of patent examination. These began in 2004 with a five year plan to increase the number of patent examiners by 100 per year, to address the backlog of 800,000 awaiting examinations. The JPO also employed additional fixed-term patent examiners.

The JPO also moved to eliminate steps that prevented patentees from enforcing their rights from an early stage. Patent applicants now receive earlier notification after filing of whether or not their research results can be patented: this is vital for companies to decide whether their product is viable and worthy of further R&D investment.

In addition to recruiting 500 extra patent examiners over the five year period, the JPO has been expanding its capacity for outsourcing prior-art searches, and deregulating requirements for search organizations.

Other incentives offered to improve the patenting environment for applicants include:

1. a reduction in fees for examination requests that include a prior-art search report prepared by registered search organizations
2. improving the availability of official gazettes published via the internet
3. extending the term of utility model rights from six to ten years from the filing date
4. converting a utility model registration into a patent application

Special measures to assist SMEs

Small and medium enterprises (SMEs) have very particular requirements because of their size, and they can not afford to learn IP management skills through costly trial and error. The JPO has introduced a number of supportive systems to expedite their applications, which include:

1. The JPO hosts explanatory meetings and IP seminars covering subjects from the introductory level to strategic acquisition and exploitation of IPR. These sessions aim to assist personnel in SMEs, such as corporate and R&D managers, to exploit their IPR quickly and efficiently. SMEs have limited cash and human resources, and the JPO assists further in making up for these deficiencies by offering expert individual consultation services on specific matters relating to industrial property rights on a national scale
2. In the regional bureaus of Economy, Trade and Industry, dedicated staff members offer regular consultation services to advise SMEs on the most expeditious ways to file applications to registration and on the actual procedure for filing an application
3. To further support exploitation of IPR and facilitate more rapid patenting, the National Centre of Industrial Property Information (NPIT) sends advisors who are experts in exploiting patent information to many different locations, in response to requests by prefectural governments. NPIT also provides free visiting consultation services and workshops for SMEs
4. To promote efficiency in assessing whether an examination should be requested, the JPO commissions private search organizations to perform free prior art searches for patent applications of both SMEs and individuals, prior to requests for examination. The search results are delivered to the applicant by post. This support saves the SME both time and money by being free of charge and determining whether an examination should be requested or not
5. In the event that an examination is necessary, the JPO allows either:

- an exemption or a 50 per cent reduction in examination fees for companies that lack funding, if the company complies with certain requirements, or
 - grants a 50 per cent reduction for SMEs dedicated to R&D activities
6. SME patent applicants, or individuals who are already implementing an invention or are in the process of having a patent or appeal/trial examination, can have this process accelerated if the applicant submits an explanation of the circumstances which necessitate them requiring an accelerated process
 7. The JPO supports more precise acquisition of rights by offering opportunities for applicants (or their agents) and the examiners/appeal examiners to meet in person to deepen their understanding of the applications and the technologies/designs
 8. In addition to these interview examinations and to interview appeal/trial examinations carried out at the JPO, the JPO or appeal examiners also visit locations nationwide to conduct circuit examinations, regional interview /appeal/trial examinations and circuit appeal/trials. The JPO also conducts TV interview examinations using a conference system installed at the patent offices of the respective Regional Bureaus of Economy, Trade and Industry
 9. Finally, the JPO allows an exemption from patent annual fees (from the first year to the third year) or a grace period of three years to individuals or companies that are lacking funds, if they comply with certain requirements. Additionally, as mentioned above, the JPO grants a 50 per cent reduction in annual patent fees (from the first to the third year) to SMEs dedicated to R&D

The new IP Highway

Japan began a unique cross border IP experiment with South Korea about three years ago in which patent applications examined in one country were accepted in the other. Such agreements were the beginning of far-sighted cross border agreements or “IP highways” as they became known. One of the most intractable global problems for patenting has been the need to patent a product or service separately in each country of the world, as each country has its own patent rules. Patent infringement on a cross-border basis is rife globally because technologies are frequently copied, changed slightly, and then filed under a new name in countries not covered by the original patent application.

On 1 April 2007, Japan established a patent prosecution highway to help rectify this problem, working with its neighbour South Korea and the Korean Intellectual Property Office (KIPO). The patent prosecution highway with South Korea has been successful. The United States Patent and Trademark Office (USPTO), European Patent Office and the Japan Patent Office (JPO) (known collectively as the KnowledgeLink newsletter scientific.thomsonreuters.com/news)

Trilateral Offices) have worked together since 2003 in search exchange projects aimed at promoting the maximum mutual exploitation of search results.

These initial projects showed the potential benefit in exploiting the search results of the office of first filing (OFF) to reduce the workload in the office of second filing (OSF) and to improve the quality in the cases where the OFF performed the search in advance of the OSF working on the corresponding application. Exploiting the search results from the OFF to the OSF is critical for patenting success.

Addressing time disparity

The USPTO and JPO have created their own patent prosecution highway to address the time disparity in availability of search results between the Trilateral Offices, in the case where the JPO is the OFF. This will give applicants that file at the JPO an incentive to file a request for examination at an earlier time, as they will obtain search and examination results early from the JPO in the case where it is the OFF.

Within this framework an applicant whose claims are determined to be allowable/patentable in the OFF can request that the corresponding application filed in the OSF be accelerated with certain conditions being met. This means that the OSF would be able to exploit the search and examination results of the OFF, and the applicant may therefore be able to obtain a granted patent much faster, since the OSF application is advanced out of turn for examination.

Pilot Programmes with the US and the UK

The patent prosecution highway pilot programme was formerly announced in May 2006 at the Trilateral Technical Meeting held in Japan. In the case where the USPTO is the OFF and the US application contains claims that are determined to be allowable/patentable, the US applicant may then request accelerated examination for the corresponding application filed in the JPO as the OSF, and have a special application under the patent prosecution highway pilot programme. The PPH pilot programme is still on trial with the initial year being extend into 2008.

Building on the success to date of the USPTO/JPO programme, the latest patent prosecution highway agreement, signed in Tokyo in March 2007, has been between the UK Patent Office and the JPO. Again the main aim is to improve both the quality and the efficiency of processing applications at both the UK and Japan offices. The UK pilot will enable patent applicants who have received an examination report by either the UK or Japanese patent office to request accelerated examination of a corresponding patent application filed in the other country. To qualify for this acceleration, patent applicants will be required to submit search and examination reports prepared by the other patent office. This process will enable each office to benefit from work previously done by the other office, which in turn will reduce examination workload and improve the quality of patents.

Goals of the patent prosecution highway initiative

These highways support greater international efforts to develop work sharing arrangements on a cross-border basis. They should serve to eventually eliminate duplication of effort, and to enable patent applicants to more easily obtain patent protection in several countries. Allowing the weaknesses and strengths of cross-border systems to be worked out through cross-national cooperation will raise standards that may lead eventually to a universal standard of application. Moving towards a universal IP language - most likely English - will also encourage greater cross-border efficiency.

Acceleration of the whole examination process can only be beneficial to all countries concerned. For example in relation to businesses in the UK, the patent prosecution highway initiative will ensure that JPO patent examinations will be completed two years earlier than the average, and the quality of the examination will be enhanced by extra work on the application already carried out by the UK Patent Office.

References

Most of this material is derived from Prof. Taplin's forthcoming book: *IP and the New Japanese Global Economy*, to be published soon by Routledge.

About the author: Professor Ruth Taplin

The Centre for Japanese and East Asian Studies, of which Prof. Taplin is Director, won Exporter of the Year in Partnership in Trading/Pathfinder for the UK in the year 2000. She received her doctorate from the London School of Economics and is the author/editor of 14 books and over 200 articles. The most recent include *Innovation and Business Partnering in Japan, Britain and the United States* (Routledge 2006), *Outsourcing and Human Resource Management- An International Survey* (Routledge 2007). Her next book is entitled *IP and the New Japanese Global Economy*, Routledge.

Prof. Taplin gives many talks and this April Chaired and Moderated a panel on alternative outsourcing destinations at Outsource World. She can be reached at Ruth.Taplin@btinternet.com

Cocoa Genome - breaking intellectual property barriers

Harry Thangaraj, Intellectual property research manager, Pharma-Planta

Vasheharan Kanesarajah, Thomson Reuters

July 2008

Cocoa has been the subject of little agricultural research compared to other major crops such as corn, wheat and rice, yet it is responsible for a multi-billion industry worldwide. Mars has announced a collaboration to sequence and analyze the entire genetic structure of the cocoa tree, in a project that exemplifies the potential values of removing IP barriers.

Environmental assaults such as climate change and disease are affecting agriculture worldwide. Governments and development agencies have been accused of losing focus on the importance of helping poor countries improve their agriculture, as the intellectual property (IP) of technologies that could help farmers address these assaults is frequently protected.

The cocoa tree, responsible for a USD13 billion chocolate industry in the US alone, is one that could benefit from improved knowledge. Farmers in Africa and elsewhere could benefit from information to fend off environmental assaults currently inflicting USD700 million to USD800 million in damages to cocoa crops each year.

Increases in chocolate consumption have spurred an increase in chocolate-related innovation, evident from increasing numbers of patents being granted. Many major chocolate companies such as Mars, Nestlé and Hershey's hold cocoa-related patents. Mars Inc. holds some of the most valuable chocolate-related technologies, with more than 30 patents related to cocoa.

Mars announced in June 2008 that it will be working with the US Department of Agriculture and information technology experts at IBM to sequence and analyze the entire genetic structure of the cocoa tree. The aim of the project is to eliminate the guesswork in traditional breeding, ultimately yielding higher quantities and quality of cocoa, and increasing income for farmers.

The five year project will involve the sequencing and analysis of around 40,000 genes comprising the cocoa genome. The gene sequences will not be patented, and Mars plans to make the research results free and accessible through the Public Intellectual Property Resource for Agriculture (PIPRA), a consortium that supports agricultural innovation.

Removing IP barriers

Patents are granted in return for sufficient disclosure of the invention. On grant, the details contained in a patent become public information, so competitors can learn of the scope of the patent and potentially go on to produce competing technologies, or apply for a license from the holder.

PIPRA is a not-for-profit initiative with a primary mission to improve access to new technologies in agriculture for developing countries, and smaller markets farming specialty crops. This is enabled through support for activities that:

- reduce IP barriers
- develop alternatives to patented inventions
- increase freedom-to-operate by addressing the fragmentation of IP rights across multiple ownerships
- facilitate technology transfer
- leverage public-sector IP for the benefit of developing countries
- support best practices in IP management in the public sector.

PIPRA has long been a supporter of open access to agricultural technology for improved crops essential to the developing world. In addition it maintains a freely accessible database of IP and agricultural innovations generated by members of its consortium, together with their licensing status, in order to enable freedom to operate. PIPRA has also collated information on non-protected technologies such as plant promoters. It works collaboratively with both academic technology transfer offices and industry to help them balance profit imperatives with agricultural technology access for developing economies.

The crowded patent thickets developing within the field of agriculture are getting increasingly complex to navigate. Assembly of technology packages with optimal freedom to operate is difficult. There is a need for improved access to technology to provide solutions for agriculture.

Other non-profit initiatives for agriculture

Cocoa has been the subject of little agricultural research compared to other major crops such as corn, wheat and rice. “GoldenRice” was a humanitarian effort to enable and commercialize transgenic rice to combat vitamin A deficiency in developing countries. It was estimated that 40 or more patents and several materials protected by Material Transfer Agreements (MTAs) were potentially necessary to enable commercialization. Despite this, the requisite IP was assembled through negotiation within just six

months, together with the creation of a public-private partnership involving Syngenta to start the commercialization process.

Plants also have non-agricultural uses for solving problems of the developing world. This includes inexpensive and large scale manufacture of recombinant biopharmaceuticals (such as HIV-neutralizing antibodies) to treat or prevent infectious diseases. However the same enabling tools used for agri-biotech could potentially restrict the commercialization of these plant-made biopharmaceuticals. This is evident from a freedom-to-operate analysis conducted by Pharma-Planta, an EU-funded academic-industry consortium. Pharma-Planta may need to negotiate in-licenses on preferential (or free) terms for specific products for the market for diseases that disproportionately affect poorer populations. Their principal scientists have issued a declaration of humanitarian intent wherein IP generated by its members will be freely available for use to third parties in developing countries in order to meet humanitarian objectives. Additionally, the consortium will not assert IP rights in developing nations in circumstances where it could curtail availability of biopharmaceuticals to combat diseases of the poor.

CAMBIA is a highly creative not-for profit organisation based in Australia that generates enabling technologies that are not compromised by patent thickets. Because of IP rights that potentially hinder the use of Agrobacterium-mediated transformation (a method for gene transfer into plants to confer desired traits), an alternative transformation system was developed to 'invent around' patented technology. CAMBIA distributes such in-house technologies through unique licensing arrangements. In this respect there are similarities to the kind of open source movement for software.

CAMBIA has also created a unique and free web-based resource in which detailed patent landscape analyses for crucial enabling technologies in agriculture are prepared to enable scientists to navigate the complex patent thickets and determine optimal solutions with freedom-to-operate.

At the 34th G8 Summit in Tokyo, Japan in July 2008, international leaders met to discuss the current food crisis and how 850 million people worldwide suffering from hunger could be helped. One of the proposed solutions was to increase public investment in research and development on ecological and climate change-resilient farming. CAMBIA, PIPRA and other organizations can aid in facilitating increased access by developing countries to such new agricultural technologies. These important initiatives reduce the knowledge gaps by removing IP barriers that have significantly hindered access to agricultural innovation.

Harry Thangaraj and Vasheharan Kanesarajah write in their own capacity and do not represent the views or position of Thomson Reuters.

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New definitive business planning tool for pharmaceutical decision makers

July 2008

Decision-makers in R&D, corporate finance, business strategy, marketing planning and corporate communications have a new tool to call on. The CMR International 2008 Pharmaceutical R&D Factbook provides a reliable, quotable source of key reference metrics and an insight into current industry trends.

CMR International, a Thomson Reuters business, is the world leader in global pharmaceutical R&D performance measurement. For almost 15 years, CMR International has worked with the leading global pharmaceutical companies to assess R&D productivity and provide insights into industry trends that are used to strengthen the planning and effectiveness of R&D.

Since 2003, CMR International has published the Pharmaceutical R&D Factbook, an annual report designed to equip those working in, or with an interest in, the Pharmaceutical R&D Sector with a reliable quotable source of key reference metrics and an insight into current industry trends. These metrics are exclusively from primary sources, including all major pharmaceutical companies who between them account for approximately 80% of the industry's global spend on research and development. They include charts on:

- global and regional R&D expenditure
- drug R&D success rates and cycle times
- trends in pipeline composition, including in-licensing
- clinical studies timescale and enrolment trends
- therapy area performance

Each chart is accompanied by a clear explanation of the methodology used and the definitions applied, so it can be quoted with total confidence – and is, throughout the industry. This year's report is bigger than ever before, incorporating information from other leading Thomson Reuters sources that provide insight into areas such as generics and patents. Trends emerging from this year's analysis include:

- Marked increases across companies of all sizes in the mean number of active substances that they are developing – an early indicator that productivity should improve
- Large increases in the number of development projects that are arising from Collaborative ventures - suggests that the model is changing
- A clear shift in patient enrolment to emerging markets

CMR International 2008 Pharmaceutical R&D Factbook: overview, pricing and ordering information:

<http://cmr.thomsonreuters.com/>

KnowledgeLink newsletter

scientific.thomsonreuters.com/news



A central communication channel for all Thomson Reuters pharmaceutical knowledge

July 2008

In the pharmaceutical industry, there's no such thing as a 'one size fits all'. Every organization is different, and that means that every user of Thomson Reuters data is different. What they all now have in common, however, is a single, central communication channel to tell them what's happening across the whole breadth of Thomson Reuters solutions.

INFOCUS is a bi-monthly email bulletin sent to all our pharmaceutical subscribers, highlighting everything Thomson Reuters is doing in this industry — the latest announcements about the solutions our users rely on, and where Thomson Reuters is providing the thought leadership that is increasingly fuelling pharmaceutical innovation around the world.

"It's an exclusive window into the latest news from Thomson Reuters," explains Jon Brett-Harris, executive vice president for the pharmaceutical and chemical markets. "Every two months, INFOCUS will help our subscribers make the most of their entitlement as a registered user of our solutions. We'll bring them free expert reports they can download, show how our commitment to their information needs powers constant development of our products, and provide invaluable advice on getting the most out of their knowledge investment."

And indeed, INFOCUS has started with a bang. In the first issue, released in May 2008, it highlighted the worldwide launch of the *BIOMARKERcenter* database, a single, comprehensive resource on biomarkers at all stages of development, accompanied by a thought leadership white paper 'Establishing the standards in biomarker research'. With the launch of *BIOMARKERcenter*, Thomson Reuters is placed at the very forefront of pharmaceutical innovation.

In the same issue, Thomson Reuters was also able to announce that *Thomson Pharma*, its world leading pharmaceutical competitor intelligence solution, had won the 2008 Queen's Award for Enterprise in the innovation category.

Sign up to receive INFOCUS at <http://scientific.thomsonreuters.com/forms/infocus/>

Trends in regulatory affairs

July 2008

The 2008 Lipient Regulatory Affairs Trends Survey highlights trends in eCTD migration and submissions outsourcing, and provides insights into regulatory product management trends.

The 2008 Lipient Regulatory Affairs Trends Survey attracted respondents from across the globe representing small, medium and large pharmaceutical companies, providing a unique insight into emerging and future trends in regulatory product management usage and adoption.

Now in its sixth year and frequently sourced by pharmaceutical journals and publications across the world, this survey has become the premier benchmark of global regulatory submission trends offering timely insights into how pharmaceutical regulatory professionals use technology today and how they plan to harness technology in the future.

Survey highlights include insights on technology usage, regulatory outsourcing trends and regulatory trends.

The Scientific Business of Thomson Reuters publishes its 2008 Lipient Regulatory Affairs Trends Survey results: <http://scientific.thomsonreuters.com/press/2008/8463886/>

Science in Taiwan

July 2008

Taiwan has focused strongly on semiconductor research during this decade, as revealed by analysis of its scientific research and patenting trends.

Scientific research trends

Between 2002 and 2006, Thomson Reuters indexed 68,602 scientific research papers that listed at least one author address in Taiwan. *ScienceWatch.com* has analyzed how these science and social science papers compare with those published in the rest of the world, in each of 21 fields in the Scientific database. The highest percentage of these papers appeared in journals classified under the heading of computer science, followed by engineering and materials science. However its impact on world research is strongest in the field of agricultural sciences.

Science in Taiwan 2002-06: http://sciencewatch.com/dr/sci/08/apr6-08_1/

Protecting this scientific research

Patenting activity in Taiwan from 2005 to 2007 was analyzed using the *Derwent World Patents Index*[®] (*DWPI*SM) database in *Thomson Innovation*SM. This revealed that the number of patents published during this period remained stable at around 20,000 per year, with around 60% to 70% of the patented inventions originating from countries outside Taiwan – mainly Japan, USA and Korea. Semiconductor devices are the top patented technology, with nine out of the top ten being related to electronics.

Taiwan patenting trends, 2005-2007:

<http://scientific.thomsonreuters.com/media/newsletterpdfs/8462431/taiwanpatenting.pdf>

Seen this before? Early detection of research plagiarism

July 2008

Plagiarism – the passing off of other people's work or ideas as your own – has become significantly easier since the development of the Internet, but so has plagiarism detection. Thomson Reuters now offers journal publishers a tool that checks submitted manuscripts against databases of previously published work.

A recent high profile case in the United Kingdom highlighted how plagiarism is usually only detected once the damage is done. Dr Raj Persaud is one of the UK's best known psychiatrists and a frequent contributor to UK television and radio programs on mental health. At a hearing of the General Medical Council in June, Dr Persaud admitted using plagiarized material in a book and in articles for newspapers and medical journals. Whether this was deliberate or accidental plagiarism, its discovery led to a messy fallout for all concerned – Dr Persaud, the researchers who claimed their work had not been correctly attributed, and the editors and publishers of the plagiarized materials. For example, the *British Medical Journal* was forced to issue a formal retraction in 2005 after publishing an article by Dr Persaud in which he failed to attribute his work correctly.

Detection of plagiarism early on in the submission and peer review process could save publishers a lot of pain. Thomson Reuters is now offering editors a new tool – iThenticate - that checks submitted manuscripts for potential copy-cutting against databases of previously published work.

According to Logan Hutchinson, a product manager in the Scientific business at Thomson Reuters, iThenticate "will reduce research integrity violations and plagiarism" by using technology to point editorial staff members in the direction of such infractions. "It's meant to provide a body of evidence," Hutchinson said.

The iThenticate tool will be offered as part of *Manuscript Central*, the Thomson Reuters peer review and online manuscript submission. iThenticate will digitally search, or crawl, the text of submitted manuscripts, comparing it to existing manuscripts stored in publisher-stocked databases, such as CrossCheck, or to public libraries of papers, such as PubMed. Searching the public-facing Internet as well as CrossCheck will help the program to flag more fingerprinted passages that show similarity to published papers that editors can check to see if plagiarism has occurred.

iThenticate will be fully integrated into Manuscript Central during 2009, with the CrossCheck database **set to come online this June**. Journals that employ *Manuscript Central*, and are therefore set to take advantage of iThenticate, include the *New England Journal of Medicine*, the American Chemical Society



and Oxford University Press families of publications, and journals published by Blackwell Publishing such as *Acta Zoologica*, *Clinical Genetics* and *Marine Ecology*.



Honoring China's contribution to global research and development

July 2008

Prominent scientific papers and their authors were recognized in Beijing, China in May 2008 with the first Thomson Reuters Research Fronts Awards, jointly presented by the Scientific business of Thomson Reuters and the Chinese Academy of Science (CAS) Research Front Analysis Center.

Thomson Reuters Research Fronts Awards are awarded to prominent scientific papers and their corresponding authors in recognition of their outstanding pioneering research and influential contribution to international research and development (R&D). The event in China was held at Hotel Nikko New Century Beijing Century Hall and attended by almost 200 of the winners' industry peers from leading research institutions, universities and libraries.

These awards are significant to China's science community as they accord global recognition to collaborative research work across all disciplines and institutions, and highlight how China's groundbreaking research has made it one of the world's leading countries for influential scientific papers. 24 research papers by 95 authors were recognised by Research Front awards after the research was analyzed using Thomson Reuters *Research Front* methodology that assesses levels of influence on specific scientific fields per se, and on other researchers in the sector.

The Research Fronts Awards are part of a series of Asia Pacific Research Days hosted by the Scientific business of Thomson Reuters to recognize research excellence in countries and regions that are leading the world through innovation in their respective fields. Similar events have taken place in Australia, South Korea, Japan and India.

According to citation analysis based on data from *Web of Science*, China is ranked second in the world by number of scientific papers published in 2007. *Scientific's World IP Today Report on Global Patent Activity 2007* reported that China almost doubled its volume of patents from 2003 to 2007, and looks set to become a strong rival to Japan and the United States in years to come. Academia represents a key source of innovation in many countries, and China has the largest proportion of this innovation. This is strong evidence of the Chinese government's drive to strengthen its academic institutions.

David Liu, Senior Director and Head of Scientific's China Regional Business Unit, hosted the Awards. Both Mark Garlinghouse, Vice-President and Managing Director, Asia Pacific and Keith MacGregor, Executive Vice President of the Academic and Government Strategic Business Unit, presented the Awards. Keith



also addressed the audience and shared how Chinese science was being measured and the impact of its contribution to the world community.

The CAS Research Front Analysis Center was founded by the National Science Library in 2004 and is committed to research that uses bibliometrics to map research fronts and track the dynamics of science developments all over the world. The Center aims to work together with leading Chinese scientists to develop and promote China science globally.

H-index: The hottest topic in information science today

July 2008

Jorge E. Hirsch, originator of the h-index, described it as 'a useful index to characterize the scientific output of a researcher'. But is the h-index really superior to other measures, such as total citations?

In late 2005, Jorge E. Hirsch, Professor of Physics at the University of California, San Diego, published an article describing the h-index, which, he called 'a useful index to characterize the scientific output of a researcher.' (See J.E. Hirsch, An index to quantify an individual's scientific research output, PNAS, 102(46): 16569-72, 15 November 2005.

A survey of the current edition of Thomson Reuters *Essential Science Indicators* database reveals that the h-index is the hottest topic in information science today, and Hirsch himself recently published another paper on this subject. He has argued that "h is preferable to other single-number criteria commonly used to evaluate scientific output of a researcher", but has also cautioned that the h-index "should only be used as one measure, not as the primary basis for evaluating people for awards or promotion."

But is the h-index really superior to other measures, such as total citations?

Citation Impact Forum: read the H index discussion at

<http://forums.thomsonscientific.com/ts/blog/article?message.uid=719>