

Technology Market Scan

INTERNATIONAL

Fight against neglected tropical diseases

The World Intellectual Property Organization and its partner BIOVentures for Global Health (BVGH) established the initiative in 2011 to boost the use of intellectual property in catalyzing innovation and product development for ailments affecting more than 1 billion people. WIPO Re:Search has launched a new five-year roadmap to guide its activities in the fight against neglected tropical diseases, malaria and tuberculosis. WIPO Re:Search now includes 126 members in 35 countries and has established 112 collaborations across the globe

The new plan, unveiled during WIPO Re:Search's biennial meeting May 23, 2017, in Geneva, will guide the public-private consortium's activities through 2021 and includes new research, capacity building and outreach efforts. WIPO Re:Search allows organizations to share their intellectual property, compounds, expertise, facilities and know-how royalty-free with qualified researchers worldwide.

The new strategic plan seeks to ensure that WIPO Re:Search harnesses new research and development trends in global health, while contributing to the achievement of the United Nations Sustainable Development Goals. As the implementing partner, BVGH will seek a more process-driven and targeted partnership-development approach to link research and development programs with gaps in research, taking into consideration the impact of the disease on people's lives.

<http://www.wipo.int>

ASIA-PACIFIC

CHINA

JV tech transfers

Foreign companies have no obligation to transfer their technologies to local partners under a joint-venture format in China, the Ministry of Commerce reiterated. The ministry's response follows foreign

media reports that global investors were required to share their technologies with their Chinese partners, violating World Trade Organization rules. Sun Jiwen, the ministry's spokesman, said that there are no compulsory technology transfer obligations for foreign investors. All the terms and conditions in business negotiations between two parties result from market behaviour rather than such a "nonexistent duty", according to Sun. He also said that "attracting foreign investment is crucial to China's opening-up. Therefore, we need to underpin a healthy and regulated market environment".

Most industries are completely open for foreign investors in China. Only a few sectors deemed sensitive have equity share limits and restrictions, according to relevant regulations. These were reduced from 43 to 15 in 2015. Eager to maintain its core competitiveness, China started to allow foreign businesses to invest in sensitive industries such as telecommunications, internet-based sectors and education in 2016. Local governments are not permitted to make arbitrary decisions that limit foreign investment.

The Ministry of Commerce and other government bodies are now revising the catalogue of industries open to foreign investment, for example, cutting the number of industries with equity share limits. The government has repeatedly said that "because of its huge market size, industrial infrastructure foundation and logistics network, China is, in the long term, the most attractive market for global companies".

Foreign companies, such as German conglomerates Robert Bosch GmbH and Siemens AG, the United States-based Cargill Inc and Royal Philips NV of the Netherlands, have all made new plans to increase their investments in China through building new plants, joint ventures and research centres. Johnson Controls Inc, the US manufacturer of energy-efficient products, control systems and batteries, will open its second global headquarters with capacity between 1,200 and 1,600 employees in Shanghai in June.

<http://www.chinadaily.com.cn>

R&D spending to be raised

China will increase its annual per capita spending on research and development (R&D) from 370,000 yuan in 2014 to 500,000 yuan (72,800 U.S. dollars) by 2020, the Ministry of Science and Technology said. According to the 13th five-year plan for national science and technology talent development (2016-2020) released by the ministry, China had 5.35 million people working in R&D by the end of 2015, the world's largest pool of R&D talent.

It said that more than 1.1 million overseas Chinese skilled workers returned to China from 2011 to 2015, which is three times the total number of the previous three decades. However, the country is still facing problems, including a lack of researchers in cutting-edge, high-end fields and insufficient expenditure on R&D talent.

<http://news.xinhuanet.com>

Tax incentives for tech SMEs

China announced measures to encourage research and development (R&D) by tech firms through favourable tax terms, the Ministry of Finance (MOF) said in a statement. Small and medium sized-enterprises (SME) in the technological sector can deduct an additional 75 percent of the R&D costs that occurred before paying taxes, effectively lowering their taxable income, according to the statement. Tech SMEs that chose alternatively to capitalize the R&D costs as intangible assets in the current accounting period can amortize the assets at 175 percent of the original costs.

The statement said that the new tax term will be in effect from the beginning of 2017 to the end of 2019. China has been offering tax incentives to spur corporate dynamism and competitiveness, offering tailored measures to firms of different types. The MOF also announced tax incentives for venture capital firms, allowing them to deduct a certain amount of taxable income for investing in startups. It also said that the value added tax (VAT) system will also be streamlined, with four VAT brackets reduced to three.

<http://www.chinadaily.com.cn>

INDIA

Low expenditure on R&D

According to the Research and Development Statistics, 2011–2012, published by the Department of Science and Technology, India's R&D expenditure is around 0.88 percent of GDP and number of R&D professionals per million population are 164. The Government has proposed several measures during the last three years to increase the number of R&D professionals in the country. These include launching the: Atal Innovation Mission (AIM) in Budget 2015, which is an innovation promotion platform involving academics, entrepreneurs and researchers; Impacting Research Innovation and Technology (IMPRINT) in November, 2015, which is a PAN-IIT and IISc joint initiative to develop a road map for research; and Uchhatar Avishkar Yojana (UAY) in December, 2015, which is to promote innovation of a higher order to serve the needs of industry and promote a vibrant research ecosystem across IITs. Further, the Government has enhanced the budget allocation of the departments under the Ministry of Science & Technology during the last 3 years from Rs.8,768.36 crore in 2014–2015 to Rs. 10,353.00 crore in 2016–2017, which helped in supporting a larger number of R&D professionals in various S&T institutions spread across various states in the country under the departments.

During Budget 2016, the Government announced a reduction in weighted tax deduction on in-house R&D expenditure by industries from 200 percent to 150 percent from the financial year 2017–2018 and 100 percent beyond financial year 2019–2020. The impact of this cut in R&D tax break cannot be assessed at this stage.

The measures taken by the Government to encourage private sector to increase expenditure towards R&D since 2014 include launching of initiatives, such as Make in India and Start-up India and supporting setting up of incubation centres for industries to up-scale their innovative ideas into products and services. Besides, the Government has been announcing a number of fiscal incentives for the pri-

vate sector to increase R&D expenditure. These include, Weighted Tax deduction on expenditure incurred in approved in-house R&D facility by companies, Weighted Tax deduction for Sponsored Research Programmes in approved national laboratories, universities and IITs, Customs duty exemption on goods imported for R&D and Central excise duty waiver for 3 years on specified goods designed & developed by a wholly owned Indian company, national laboratory, public funded research institutions, or university and patented in any two countries amongst India, USA and Japan, and in any one country of the European Union.

<http://pib.nic.in>

Royalty payment norms

A surge in royalty outflow has prompted the government to set up an inter-ministerial group to analyse payment norms and see whether there is excessive payout by Indian companies to foreign collaborators. Royalty is paid to a foreign collaborator for transfer of technology, usage of brand or trademarks. "Royalty outflow has surged in the recent past and it needs to be analysed. So, the government has set up this inter-ministerial panel," an official said.

The panel will be headed by an additional secretary level officer of the Department of Industrial Policy and Promotion (DIPP). It also has representatives from departments of revenue, economic affairs and the Reserve Bank. It will submit its report by June. The terms of reference include scrutiny of the outflow and the present legal structure dealing with royalty payments and transfer pricing.

Earlier, the DIPP had raised serious concerns over the increasing outflow of such payments. The department had proposed reintroduction of restrictions on such payments by companies to their parent entities. It had argued that the curbs would help increase the profits of domestic companies, mainly in the automobile sector, prevent depletion of foreign exchange reserves, protect interest of minority shareholders and increase revenue for the government.

<http://www.dnaindia.com>

Technology and innovation support centres

Industrial promotion body, Department of Industrial Policy and Promotion (DIPP) of Government of India, and the World Intellectual Property Organisation (WIPO) have joined hands to establish Technology and Innovation Support Centres in the country which is expected to boost generation and commercialisation of intellectual properties. The agreement, signed between the Department of Industrial Policy and Promotion (DIPP) and WIPO for setting up of Technology and Innovation Support Centres (TISCs), will also provide an impetus to knowledge sharing, capacity building and sharing of best practices among over 500 TISCs operating worldwide by giving the host institutions access to global network.

The services offered by TISCs may include access to online patent and non-patent (scientific and technical) resources and IP-related publications; assistance in searching and retrieving technology information; training in database search; on-demand searches (novelty, state of the art and infringement); monitoring technology and competitors; and basic information on industrial property laws, management and strategy, and technology commercialisation and marketing.

WIPO's TISC programme provides innovators in developing countries with access to locally based, high-quality technology information and related services, helping them exploit their innovative potential and to create, protect, and manage their intellectual property (IP) rights. The Cell for IPR Promotion and Management (CIPAM), under the Ministry of Commerce & Industry, has been designated as the national focal point for the TISC network. CIPAM shall identify potential host institutions, assess their capacities and support them in joining the TISC project.

<http://economictimes.indiatimes.com>

JAPAN

Automakers R&D spending

Research and development spending by seven major Japanese carmakers is

expected to total a record 2.85 trillion yen (\$25.5 billion) in fiscal 2017 as they scramble for advantage in such technologies as autonomous driving. The sum is up 7 percent from fiscal 2016. Honda Motor, Suzuki Motor, Mazda Motor and Subaru are to spend their most ever. Toyota Motor and Nissan Motor will keep their existing record levels from fiscal 2015. Mitsubishi Motors will increase its outlays by 20 percent.

The automakers' aggregate operating profit is seen shrinking about 10 percent from fiscal 2016 to 3.86 trillion yen, due in part to a slowdown in their cash cow market, North America. Yet the companies are stepping up R&D investment to cultivate green, autonomous driving and other emerging technologies. Outsourcing costs are rising amid labor shortages in Japan.

The auto industry accounted for 22 percent of around 13.7 trillion yen in fiscal 2015 R&D spending by companies in Japan, according to the Ministry of Internal Affairs and Communications. Toyota is expected to increase its R&D spending 1 percent this fiscal year to 1.05 trillion yen. This marks a fourth straight year exceeding 1 trillion yen in spending. The company is boosting spending in key areas like autonomous driving, connected cars, artificial intelligence and robotics. Toyota is bracing for a second straight year of operating profit decline this fiscal year. Nonetheless, it is spending a hefty sum on R&D to keep up with a rapidly changing competitive landscape. Many information technology and other companies are getting into autonomous driving. In 2016, Toyota created an artificial intelligence R&D unit in the U.S., headed by an external expert. The company has also decided to partner with Nvidia, a graphics processing unit maker in the U.S. Both ventures are to speed up technology development.

Overseas rivals are also stepping up R&D spending. Volkswagen spent 13.6 billion euros (\$15.2 billion) in 2016, up 0.4 percent on the year. For the next five years, the German company plans to spend 9 billion euros for electrification technology. In the U.S., General Motors has earmarked \$8.1 billion, up 8 percent on the year.

<http://asia.nikkei.com>

MALAYSIA

Fund for start-ups

Malaysian government-owned Cradle Fund unveiled a new grant product today, while scrapping two previous ones as part of its shift toward equity investing. The new product, Cradle Investment Programme 300 (CIP300), is a pre-seed program that provides up to US\$69,400 in financial and "value-added" assistance to entrepreneurs who want to kickstart their businesses without giving away equity. CIP300 was the offshoot of a revamp in Cradle's grant strategy. A spokesperson told *Tech in Asia* that the agency has junked two previous grant products – CIP Catalyst (up to US\$35,000) and CIP500 (up to US\$116,000) – after suspending them late last year. "[They] will no longer be available," she said.

Cradle wants to lessen startups' dependence on grants and the lower amount CIP300 offers will encourage them to seek other funding options such as crowdfunding, angel or VC investments, it said. "By weaning startups off grants, Cradle intends to introduce outside investors earlier ensuring local startups have the discipline, professionalism and focus required to propel them to the next level," the agency explained. But it's not going to leave startups hanging in the air after the pre-seed stage. It has DEQ800, an equity product worth up to US\$185,000 that's meant to be "the next step for early-stage startups to scale up."

Launched last March, DEQ800 is Cradle's latest initiative toward equity investing and allows it to invest on its own. Before that, it could only snap up stakes in startups under a co-investment program, where it matches any funding given by its investor-partners. CIP300's key feature is a range of value-added support for recipients such as an intensive mentoring program throughout the funding period, opportunity to be matched with potential investors, training in innovation and commercialisation, participation in Cradle business and networking events, as well as media and public relations.

The investment product targets ICT, non-ICT and other technology-based fields such as semiconductors, life sciences and clean technology. Eligible to apply are Malaysian individuals or incorporated companies operating less than three years. For each grant award, Cradle expects at least 60 percent to be allocated for commercialisation costs, and the rest for product development and other costs.

<https://www.techinasia.com>

Technology and market radar for SMEs

SIRIM Berhad has launched the Technology and Market Radar (TMR), a business tool to assist local SMEs to identify relevant technology and market trends to enable them to make strategic decisions on technology investment. TMR is designed to be accessed by SMEs, Ministries and Government Agencies to retrieve relevant and strategic information on technology and business trends complemented with an analysis of opportunities and challenges.

The TMR was launched by President and Group Chief Executive of SIRIM, Dr Ahmad Fadzil Mohamad Hani with more than 100 participants attending the event, comprising local SMEs, industries and government officials related to the Malaysian SME activities. Based on Technology Audits conducted on more than 300 SMEs in 2015 and 2016 by SIRIM under the SIRIM Fraunhofer Programme, the lack of data on market and technology trend was identified as one of the weaknesses affecting SMEs business growth.

To address this weakness, SIRIM and Fraunhofer IAO has collaborated to establish Technology and Market Radar (TMR) suitable for Malaysian SMEs. Ahmad Fadzil said the initial implementation stage of TMR has two main focus search topics namely Industry 4.0 and Renewable Energy as both technology fields are categorised as high interest fields among SMEs to boost productivity growth.

There will be one radar for the non-technical trend, which is based on the Social, Economic, Environment and Politics methodology.

<https://www.nst.com.my>

PHILIPPINES

Technology business incubators

More than 50 officers and researchers from 10 state universities and colleges (SUCs) in the Philippines recently participated in a training workshop to help them pursue their technology business incubators (TBIs). Titled "Training cum Writeshop on the Establishment of Agribusiness Technology Business Incubators", it was spearheaded by the Philippine Council for Agriculture, Aquatic and Natural Resources Research of the Development of the Department of Science and Technology (DOST-PCAARRD) and held recently at the DOST-PCAARRD Innovation and Technology Center (DPITC) in Los Baños, Laguna.

The DOST defines TBI as a facility, which hosts start-ups and provides business development services. The DOST-PCAARRD believes that helping SUCs establish or enhance their respective agribusiness TBIs can create jobs, develop entrepreneurs, and promote public-private partnerships for regional economic development.

A number of TBIs have already been established in the country, some of which are based in SUCs. Three SUCs, such as Benguet State University, University of the Philippines Visayas and Visayas State University, have shared insights on how they implement their respective business incubation programs during the workshop. Facilitated by the council's Technology Transfer and Promotion Division (TTPD), the training, besides the sharing of firsthand experiences, also presented the important concepts related to various modes of technology transfer, specifically on commercialisation through the establishment of agribusiness TBIs.

<http://www.businessmirror.com.ph>

REPUBLIC OF KOREA

Technology exports

The Ministry of Science, ICT & Future Planning of South Korea announced that the country posted a technology trade balance

of US\$28.617 billion last year, up 6.0 percent from a year ago. Specifically, the exports increased 6.6 percent to US\$10.408 billion and the imports increased 5.6 percent to US\$16.409 billion. The exports had reached US\$5 billion in 2012 and then broke the US\$10 billion mark in three years. This was led by a 111.1 percent increase in technology export from the chemical sector, where major pharmaceutical companies signed a series of big contracts. The electrical and electronics industry accounted for 47.2 percent of the total technology trade balance last year. This sector's deficit was US\$4.647 billion during the same period.

That year, the country's major technology trade partners were China, Vietnam and the United States in the case of exports from South Korea, and the United States, Singapore and Japan when it comes to imports. The exports to China and the United States declined whereas the exports to Vietnam showed a significant growth. About 48.6 percent of the technology South Korea imported last year was from the U.S. and the imports from Singapore increased by as much as 254.5 percent.

<http://www.businesskorea.co.kr>

Tech firms' R&D investment

Republic of Korean information technology companies, mainly Samsung Electronics Co., SK Hynix Inc. and LG Electronics Inc., increased their spending on research and development last year with their R&D investment against sales higher than that of U.S. multinational tech giant Apple Inc. According to a study by Maeil Business Newspaper Wednesday on business reports of 17 companies whose market capitalization is more than 10 trillion won (\$8.8 billion), they invested a total of 28.54 trillion won in R&D last year, an increase of 2 percent from 27.97 trillion won in 2015.

Samsung Electronics took the lion's share by spending 14.79 trillion won on R&D for semiconductor, home appliance and smartphone businesses in 2016, according to the company's regulatory filing. The figure accounted for 7.3 percent of its last year's sales of 201.87 trillion won,

higher than Apple's R&D spending of 4.4 percent against its sales from October 2015 to June 2016.

The country's second largest chip maker SK Hynix' R&D investment against sales reached 12.2 percent last year, the highest among the 17 firms. Its R&D spending exceeded 2 trillion won for the first time last year, about 64 percent of its operating profit of 3.27 trillion won. LG Electronics also raised its investment in R&D to 7 percent of its sales, spending 3.88 trillion won last year, up 69.4 billion won from a year earlier. It has set a goal to increase its spending on the development of technologies related to the so-called fourth industrial revolution like the Internet of Things and big data this year. LG Display Co. spent 4.3 percent of its sales on R&D, but the actual amount of investment decreased by 7 percent from 2015.

On the other hand, Samsung SDS Co. cut the R&D investment by 9 percent, and Posco by 9.5 percent following its business streamlining. Hyundai Heavy Industries spent 21.3 percent less on R&D in 2016 from the previous year, hit by the protracted slowdown in the shipbuilding and shipping industries. The country's second largest car maker Kia Motors Corp. spent 3.1 percent of its sales on R&D last year, more than its bigger sister company Hyundai Motor Co. with 2.5 percent. In the cosmetic industry, AmorePacific Corp. showed greater R&D investment of 1.7 percent than LG Household & Healthcare Co. with 0.4 percent. In the chemical industry, LG Chem Ltd. spent 3.3 percent of its sales, higher than its rival Lotte Chemical Co. with 0.5 percent.

<http://pulsenews.co.kr>

Patents on smart automobile technology

It has been found that the number of Republic of Korea's patents on smart automobile technology ranked second in the world but in terms of qualitative levels, Korea was outmaneuvered by its competitors such as Japan and China. The Korea Economic Research Institute (KERI) said

this fact on April 5 through a report titled "Analysis of Technology Capabilities and Development Direction of the Smart Car Industry" (from 1970 to 2015, based on the US Patent Office)."

According to the report, Korea had shown the fastest growth rate of an increase of 8.8 percent points (based on the number of applications) among major countries since 2000s. Korea overtook Germany in 2013 and Japan in 2014, and ranked second in terms of annual registrations for the third year. Among Korean companies, Hyundai Motor and Hyundai Mobis ranked 8th and 24th, respectively. They were followed by Samsung Electronics (25th) and LG Electronics (30th). Harman, an auto parts company, recently acquired by Samsung Electronics, ranked 35th. The Korea Electronics and Telecommunications Research Institute (ETRI) was the only Korean research institute with the 32nd ranking. It was noteworthy that global IT giant Google ranked 10th and smart automobile patent applications by German automakers were not highly contrary to expectations.

The Republic of Korea strong in the sensor and human vehicle interface (HVI) sectors is relatively weak compared to major countries in terms of safety technology. Analysis of the number of patents filed for the top eight countries (2011–2015) based on the number of patent applications cited in subsequent inventions found that Korea with 0.94 times came in seventh before the UK with 0.91 times.

The country with the highest average number of citations was for the United States with 3.91 times. The US was followed by Germany with 2.54 times, Canada with 2.07 times, both Japan and China with 1.81 times and Taiwan with 1.14 times. However, in the field of human vehicle interfaces (HVIs), Korea finished 5th after the US, Japan, Germany, and the UK.

<http://www.businesskorea.co.kr>

Fund to help bio start-ups

Republic of Korea will establish a 113.5 billion-won (US\$101.8 million) fund to nurture startups and venture firms in the bio sector

to secure new growth engines, the science ministry said. Under the comprehensive plan finalized during a government meeting presided over by Acting President and Prime Minister Hwang Kyo-ahn, the fund will be floated to help young jobseekers launch new startups and develop new bio technology, the Ministry of Science, ICT and Future Planning said.

The ministry said it will partner with the Small and Medium Business Administration and the Ministry of Trade, Industry and Energy to nurture the fund that is aimed at bringing more investment and creating more jobs. The fund will focus on establishing infrastructure and help them in research and development (R&D), ministry officials said. "The government should push forward with measures to nurture startups, which are aimed at revitalizing the economy and creating more jobs," Hwang said.

The ministry has been making efforts to nurture the bio sector, which is viewed as the nation's next growth engine after IT. South Korea aims to become a global biotech and medical industry hub going forward.

<http://english.yonhapnews.co.kr>

SINGAPORE

Innovation fund to drive enterprise growth

The Intellectual Property Office of Singapore (Ipos) and home-based private equity firm Makara Capital launched a S\$1 billion fund on Wednesday (April 26), with aims to invest in companies with strong intellectual property focus, to help them expand into global markets after their initial start-up phase. The Makara Innovation Fund (MIF) is among a slew of initiatives that are projected to inject S\$1.5 billion value-add into the economy and double the number of skilled intellectual property experts in Singapore to 1,000 over the next five years.

"Intellectual property (IP) is going to be an important enabler of Singapore's growth moving forward," said the Senior Minister of State for Law and Finance, Ms Indraneel

Rajah, at the launch of the fund. "Singapore has a strong IP regime, which will enable local businesses to harness IP for growth. We will focus on helping enterprises to integrate IP into their business strategies early, and to commercialise their IP and scale up."

The initiatives are in line with the updated IP Hub Master Plan, first launched in 2013 by the Ministry of Law and Ipos. The measures will support the recommendations by the Committee on the Future Economy to strengthen Singapore's innovation ecosystem and build capabilities to help enterprises innovate and scale up, said Ipos. The fund is looking at investing in 10 to 15 companies over a period of eight to 10 years, with investments in the range of between S\$30 million and S\$150 million in each of these organisations. While the companies could be from any part of the globe, they must be supported by innovation and technology with the ability to create IP assets.

The idea is for the companies to tap Singapore's IP eco-system to help them deepen their value creation, compete effectively and expand into the global markets. Employing a "from Singapore and through Singapore" approach, the fund will help anchor the nation as a destination for ideas to be translated into assets, said Ipos in a press statement. Ipos will partner the Singapore Business Federation to help its 25,000 members grow through IP and innovation in their business strategies. The partnership will help build IP awareness and competencies in local companies through services such as training, executive education and IP clinics.

The enterprise engagement arm of Ipos, IP ValueLab, will also collaborate with international IP management consultancy firm EverEdge Global to reach out to more than 150 local innovative enterprises over the next three years. The joint effort seeks to provide intensive and customised assistance on IP strategy, management and commercialisation. "A new, self-help business portal will provide access to a repository of IP business guides and diagnostic toolkits", Ipos said.

<http://www.todayonline.com>